UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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OFFICE OF
ECOSYSTEMS, TRIBAL AND
PUBLIC AFFAIRS

August 19, 2014

Ms. Sondra Ruckwardt
U.S. Army Corps of Engineer District, Portland
Attn: CENWP-PM-E/Double-crested Cormorant Draft EIS
P.O. Box 2946
Portland, Oregon 97208-2946

Re: Double-crested Cormorant Management Plan to Reduce Predation of Juvenile Salmonids in the Columbia River Estuary Draft Environmental Impact Statement
EPA Region 10 Project Number: 14-0032-COE

Dear Ms. Ruckwardt:

The U.S. Environmental Protection Agency has reviewed the Draft EIS for the Double-crested Cormorant Management Plan to Reduce Predation of Juvenile Salmonids in the Columbia River Estuary. We are submitting comments in accordance with our responsibilities under the National Environmental Policy Act and Section 309 of the Clean Air Act. Thank you for the opportunity to offer comment on the proposed action.

In response to Reasonable and Prudent Alternative Action 46 (RPA 46) of the 2014 Supplemental Federal Columbia River Power System Biological Opinion prepared by NOAA Fisheries, the Corps proposes to reduce the double-crested cormorant (DCCO) population on East Sand Island in the Columbia River estuary from approximately 14,000 breeding pairs to approximately 5,600 breeding pairs[1]. In addition to the No Action Alternative A, the DEIS presents 3 action alternatives that would reduce the DCCO population using a combination of non-lethal and lethal methods. Alternative B would emphasize non-lethal hazing, habitat modification, and limited (lethal) egg take. Alternative C (the Corps Preferred Alternative) would emphasize lethal take (shooting) of approximately 16,000 DCCOs and limited egg take followed by terrain modification and hazing to allow nesting of DCCOs (at or below target population levels) within a reduced designated area. Alternative D would apply lethal take (shooting) of approximately 16,000 DCCOs, followed by terrain modification, hazing, and egg take to remove all DCCOs from East Sand Island and disperse the remaining approximate 5,600 breeding pairs away from the Columbia River Estuary.

[1] A colony size of ~ 5,600 breeding pairs could remain, but no management actions would be taken to ensure a minimum colony size (Exec. Sum. p. 10).

Based on the information provided in the DEIS, we are rating the DEIS as EC-2, Environmental Concerns, Insufficient Information. An explanation of the EPA rating system and detailed comments are enclosed. The reasons for this rating are as follows:

- We believe that additional analysis is needed to more fully evaluate non-lethal population control alternatives.
- The proposed action does not adhere to the Guiding Principles established by the Pacific Flyway Council regarding Avian Predation on Fish Resources[2].
- The proposed lethal take of approximately 16,000 double-crested cormorants would also likely lethally take many non-target bird species, all of which are native and integral to the natural ecosystem and processes of the Columbia River Estuary.
- The Preferred Alternative would reduce the East Sand Island DCCO colony by 56%. This would eliminate 25 to 26% of the western population of DCCOs (Ch. 4, p. 12-13), which, except for the East Sand Island population is in substantial decline (Ch. 3, p.3).
- Additional information is needed to support the conclusion that 1990 western population levels of DCCOs, reduced as a result of implementing the Preferred Alternative, would be viable and sustainable.
- A DCCO western population viability analysis is needed. Among other viability and mortality factors, the analysis would need to identify current and likely future habitat availability for DCCOs within the range of the western population that factors in current and projected future climate change conditions.
- The analysis of economic benefits from reducing DCCO predation on juvenile salmonids per RPA 46 may overstate the benefits and understate the costs. Also, the analysis does not incorporate compensatory mortality and recent science on this subject.
- To put this proposed action in context, the EIS should include discussion of other means available to the Corps to assist recovery of ESA-listed salmonids.

We acknowledge and respect NOAA Fisheries' expertise, authority and effort to restore salmonid populations, and likewise acknowledge USFWS' expertise and authority for managing DCCO and other migratory bird populations. We encourage the collective responsible agencies to continue to pursue and use all appropriate, applicable science to select actions that will best maintain viable populations of these species.

[2] Pacific Flyway Council. 2012. Pacific Flyway Plan: A Framework for the Management of Double-crested Cormorant Depredation on Fish Resources in the Pacific Flyway. Pacific Flyway Council, U.S. Fish and Wildlife Service, Portland, Oregon. 55pg.

Thank you for the opportunity to offer comment on the proposed Cormorant Management Plan. We look forward to continued involvement in the NEPA process for this project. If you have questions or would like to discuss our comments, please contact me at (206) 553-1601 or via electronic mail at reichgott.christine@epa.gov, or Elaine Somers at (206) 553-2966 or via electronic mail at somers.elaine@epa.gov.

Sincerely,

Christine B. Reichgott

Christine B. Reichgott, Manager
Environmental Review and Sediment Management Unit

Enclosures

1. Detailed Comments on the DCCO Management Plan
   to Reduce Predation of Juvenile Salmonids in the Columbia River Estuary Draft EIS
2. EPA Rating System

U.S. Environmental Protection Agency
Detailed Comments on the DCCO Management Plan
to Reduce Predation of Juvenile Salmonids in the Columbia River Estuary Draft EIS

Guiding Principles of the Pacific Flyway Council regarding Avian Predation on Fish Resources
The PFC guidance[3], which includes six main principles and their subparts, states that, "Inherent in this policy is the recognition that management of avian predation must be implemented in a manner and at a scale consistent with the conservation of migratory bird populations and the fish populations with which they interact." The guiding principles direct that non-lethal control actions that result in no direct take of nongame migratory fish-eating birds should be attempted first. Information in the DEIS does not support PFC guidance principles such as:

- Principle 4: Responses to perceived avian predation issues are based on sound science – (c) Expectations of how management actions will reduce impacts to affected fish populations are explicitly addressed; (d) Expected outcomes of management actions on affected avian populations are clearly understood.
- Principle 5: Important considerations when evaluating the need for management action in response to avian predation of fish resources – (a) Assessment of population-level impacts for both migratory birds and fish; (e) Cost-benefit analyses for proposed management strategies.
- Principle 6: Methods for reducing avian predation on fish resources are always implemented within existing regulatory frameworks – (b) Non-lethal control actions that result in no direct take of nongame migratory fish-eating birds should be attempted first.

NOAA Fisheries used the 1990s level DCCO population as a base for calculating their 2014 gap analysis, which is a point in time used to show change in potential DCCO fish consumption; it does not represent a scientific assessment of what would be considered a viable population size for DCCOs. The DEIS also states that NOAA's calculation of fish eaten by DCCOs is based upon PIT tags and a bioenergetics model. However, no information about the bioenergetics model is provided in the DEIS or its appendices.

NOAA's Biological Opinion for the FCRPS prescribes a 56% reduction in the ESI DCCO colony, resulting in a reduction of 25 to 26% of the western population of DCCOs, which are currently an order of magnitude lower than historical populations. DCCOs are still rebounding from severe decline resulting from impacts such as unregulated hunting, harassment, and DDT-induced reproductive failure.

The DEIS acknowledges uncertainties associated with the Preferred Alternative and that the proposed action could be taken without a clear understanding of the consequences. For example, the DEIS states (Ch. 4, p. 15) that while there are examples elsewhere of DCCO and great cormorant populations increasing after lethal management, those populations are an order of magnitude larger than the western population of DCCOs, and there is more uncertainty in how the western population of DCCOs could respond to the proposed levels of culling. There have not been large-scale culling programs within the western population of DCCOs, the western population exhibits little to no growth except for East Sand Island. ESI is not within a connected matrix of other large breeding colonies within the affected

[3] Pacific Flyway Council. 2012. Pacific Flyway Plan: A Framework for the Management of Double-crested Cormorant Depredation on Fish Resources in the Pacific Flyway. Pacific Flyway Council, U.S. Fish and Wildlife Service, Portland, Oregon. 55pg.

environment, and additional annual authorized take is occurring elsewhere within the western population (Ch. 4, p. 16).

Recommendation: Conduct further studies and gather scientific information that support decisions regarding DCCO predation reduction and maintenance of a viable western population of DCCOs.

Cost-benefit analysis and Compensatory Mortality

The DEIS (Ch. 4, p. 38-40) projects the maximum potential regional economic benefits that can be derived from implementing the DCCO predation reduction program would be $1.5 million, a 3.1% increase in revenue. The significance of this increase on a per capita basis when spread among the many commercial fishermen, recreational fishing-related businesses, and tribes has not been quantified and thus is not clear. In addition, this maximum possible increased revenue may be overestimated because neither compensatory mortality[4] nor the costs of implementing the DCCO predation reduction program nor potential increased costs outside the Columbia River Estuary that may be incurred from DCCO dispersal have been factored into this estimate. Should the DCCO predation reduction efforts and related direct and indirect impacts result in ESA listings of the western DCCO population and/or non-target species populations, the costs for ESA-related expenditures to local, state, federal governments, tribes, and other entities would need to be added to the costs of the proposed DCCO predation reduction program.

Based on these factors and other information[5], the costs could potentially outweigh economic benefits of implementing the proposed program. Other unanticipated ecosystem effects may trigger additional direct and/or indirect costs, loss of ecosystem integrity and services[6].

Recommendation: In the Final EIS, factor the additional costs of elements such as those discussed above, including compensatory mortality, into the analysis of economic effects. Acknowledge the potential for additional costs that cannot be quantified or fully predicted due to the complexity and uncertainty of ecological effects from the proposed action.

Ecosystem Health and Process Considerations

We have concerns regarding an apparently increasing tendency to set population objectives for cormorants and other fish-eating birds, fish, and other wildlife (such as, Caspian terns, pinnepeds, and pike minnows) based disproportionally on fishery or other human interests. We agree with Wires and Cuthbert[7] that population objectives should be based on species biology, regional ecology, ecosystem health and process "that recognize humans, fish and cormorants as three components of a complex system driven by many species and dynamic interactions."

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[4] Compensatory mortality occurs when reduced juvenile salmonid mortality from DCCOs is replaced by another source of mortality (Ch.4, p.93)

[5] For example, the cessation of research, monitoring, dissuasion, and other disturbance to the DCCO colony would reduce number of DCCOs at the Astoria Bridge, which increased during dissuasion experiments (Ch. 4, p. 43), thereby reducing need for maintenance and USDA-Wildlife Services at transportation and other facilities.

[6] Consider, for example, "Reef-eating threatened fish force scientists to take whole-system approach to conservation", http://www.eenews.net/greenwire/2014/07/30/stories/1060003773

[7] Wires, Linda R., Cuthbert, Francesca J. *Historic Populations of the Double-Crested Cormorant (Phalacrocorax auritus): Implications for Conservation and Management in the 21st Century.* Waterbirds: The International Journal of Waterbird Biology. Vol. 29, No. 1 (March, 2006), pp. 9-37

Birds are considered to be good indicators of the health of the ecosystem[8]. Based on information presented in the DEIS (Chapters 3 and 4), the DCCO western population is either static or in decline throughout its range except for East Sand Island. Recent growth in the western DCCO population is attributed almost entirely to the ESI population. The ESI population is growing as a result of immigration from other locations, as well as through reproductive success. This is largely due to the stable food supply afforded by forage fish and hatchery releases of juvenile salmon below Bonneville Dam. Studies reveal that juvenile salmonids comprise an average of only 10 to 15% of the DCCO diet on East Sand Island. The majority of DCCO diet consists of forage fish. Diet tends to shift to juvenile salmonids when high river flows and hatchery fish releases occur in spring. The lower fitness of hatchery fish makes them susceptible to predation.

In the Salish Sea and throughout the west, fish eating waterbirds are experiencing severe declines. East Sand Island is one of few locations where DCCOs and a wide variety of other waterbirds, shorebirds, and waterfowl are thriving, such that the Island has been designated a Globally Important Bird Area (IBA) by both the Audubon Society and the American Bird Conservancy. Because DCCOs are highly philopatric, DCCO immigration to ESI may indicate that conditions for survival are likely unsuitable elsewhere. This should be factored into any DCCO management plans, as well as the fact that even with the increasing DCCO population on ESI, the population of ESA-listed salmonids has been increasing.

Recommendation: Since RPA 46 is discretional,[9] fully investigate non-lethal alternatives and the other means available to the Corps to support recovery of listed fish populations.

Impacts to non-target species

We are concerned that the proposed action would result in the take of non-target species due to misidentification, night shooting, direct and indirect effects of disturbance, and incidental crushing of eggs, chicks, and fledglings. Eighty-four species of birds have been identified on the 60-acre East Sand Island. It supports the largest breeding population of Caspian terns and cormorants in the world, and the largest post-breeding roost site for Brown pelicans on the West Coast. The Streaked horned lark, recently listed as threatened under the ESA, also uses the island. Both Audubon Society and the American Bird Conservancy have designated East Sand Island as a Globally Important Bird Area. Brandt's and pelagic cormorants are the non-target bird species of most concern with respect to lethal take because they are easily misidentified and Brandt's cormorants nest among DCCOs (Ch. 4, p. 48). Streaked horned larks are of most concern off East Sand Island where hazing in the Columbia River Estuary may become more intensified.

Recommendation: Because East Sand Island is identified as high value bird habitat, we recommend selection of an alternative that fully minimizes impacts to migratory and resident species.

[8] Declines in marine birds trouble scientists: Encyclopedia of Puget Sound. http://www.eopugetsound.org/articles/declines-marine-birds-trouble-scientists?utm_source

[9] http://www.fws.gov/endangered/what-we-do/faq.html

U.S. Environmental Protection Agency Rating System for
Draft Environmental Impact Statements
Definitions and Follow-Up Action*

Environmental Impact of the Action

LO – Lack of Objections

The U.S. Environmental Protection Agency (EPA) review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC – Environmental Concerns

EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce these impacts.

EO – Environmental Objections

EPA review has identified significant environmental impacts that should be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no-action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU – Environmentally Unsatisfactory

EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the Council on Environmental Quality (CEQ).

Adequacy of the Impact Statement

Category 1 – Adequate

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis of data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2 – Insufficient Information

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses or discussion should be included in the final EIS.

Category 3 – Inadequate

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the National Environmental Policy Act and or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

* From EPA Manual 1640 Policy and Procedures for the Review of Federal Actions Impacting the Environment. February, 1987.