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The is a Comment on the **Fish and Wildlife Service** (FWS) Proposed Rule: **Migratory Bird Permits: Management of Conflicts Associated with Double-Crested Cormorants (Phalacrocorax auritus) Throughout the United States**

For related information, **Open Docket Folder**

Comment

Please accept the attached comments from Audubon Society of Portland et al. regarding the Double-crested Cormorant DEIS. Thank you

Bob Sallinger
Conservation Director
Audubon Society of Portland

Attachments (1)

Audubon Society of Portland et al. Double-crested Cormorant DEIS Comments FINAL 7-20-20

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Submitter Information

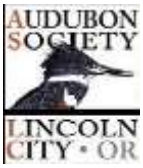
Submitter Name:
Bob Sallinger

City:
Portland

Country:
United States

State or Province:
OR

ZIP/Postal Code:
97210

Date: July 20, 2020
From: Audubon Society of Portland, East Cascades Audubon Society, Salem Audubon Society, Kalmiopsis Audubon Society, Umpqua Valley Audubon Society, Cape Arago Audubon Society, Ten Mile Creek Audubon Sanctuary (Yachats), Audubon Society of Lincoln City, Klamath Basin Audubon Society, Rogue Valley Audubon Society, Lane County Audubon, Corvallis Audubon Society, Oregon Wild, Center for Biological Diversity, WildEarth Guardians, Humane Voters Oregon, Friends of Animals and Humane Society of the United States
To: US Fish and Wildlife Service
Re: Draft Environmental Impact Statement (DEIS) regarding the Management of Conflicts Associated with Double-crested Cormorants (ID: FWS-HQ-MB-2019-0103-1411)

Please accept the following comments from the Audubon Society of Portland, East Cascades Audubon Society, Salem Audubon Society, Kalmiopsis Audubon Society, Umpqua Valley Audubon Society, Cape Arago Audubon Society, Ten Mile Creek Audubon Sanctuary (Yachats), Audubon Society of Lincoln City, Klamath Basin Audubon Society, Rogue Valley Audubon Society, Lane County Audubon, Corvallis Audubon Society, Oregon Wild, Center for Biological Diversity, WildEarth Guardians, Humane Voters Oregon, Friends of Animals and Humane Society of the United States regarding the Draft Environmental Impact Statement ("DEIS") for Management of Conflicts Associated with Double-Crested Cormorants (*Phalacrocorax auritus*) ("DCCO") throughout the United States (ID: FWS-HQ-MB-2019-0103-1411).

The United States Fish and Wildlife Service ("USFWS" or "Service") is currently requesting comments on a DEIS developed under the National Environmental Policy Act ("NEPA") for the management of Double-

crested Cormorants throughout the United States. Portland Audubon et al. previously commented on a scoping process associated with this NEPA process in March 2020. USFWS states that the purpose of this action is "to develop a long-term, coordinated approach in order to minimize conflicts from double-crested cormorants, while maintaining sustainable populations of cormorants and minimizing the regulatory burden on Federal and State agencies and individual citizens."

The US Fish and Wildlife Service recognizes a responsibility that "pursuant to the four international bird conventions, the Service is responsible for maintaining sustainable populations of cormorants and authorizing take when take is compatible with these conventions. Therefore the Service is responsible for determining the maximum amount of lethal take that can occur in order to minimize damage and conflicts, while maintaining a sustainable cormorant population."[1] We believe that each of the four Action Alternatives, including the preferred Action Alternative A, fail to meet this obligation. None of the four action alternatives is adequately protective of Double-crested Cormorants to meet the obligation of the US Fish and Wildlife Service to ensure sustainable Double-crested Cormorant populations. Further, the DEIS fails to adequately address multiple essential issues including monitoring, adaptive management, non-lethal approaches, non-target take, efficacy of take, or substantiating a need for take, and others documented in these comments that are necessary to ensure that its actions are effective, ecologically responsible and humane. Finally, the DEIS perpetuates a long and unfortunate pattern of the US Fish and Wildlife Service capitulating to narrow economic interests that seek to persecute and scapegoat the Double-crested Cormorant simply for following its natural inclination to consume fish. **We strongly recommend that the US Fish and Wildlife Service adopt Alternative E, the No Action Alternative.**

Overview of DEIS

The US Fish and Wildlife Service is proposing to allow the annual killing of as many as 123,157 Double-crested Cormorants using modelling that has not undergone a peer review process. This lethal control activity is divided up among regional breeding populations (Western, Interior, Atlantic and Southern). Based on current low and high population estimates provided in the DEIS by USFWS, this would potentially result in, for all four action alternatives, the annual lethal control of between 12.5%- 14.1% of the total national population of Double-crested Cormorants. In the Western United States, where populations are an order of magnitude smaller than east of the Rocky Mountains and much more vulnerable to small fluctuations in population. USFWS proposes to allow the annual killing of up to 8,881 Double-crested Cormorants representing 9.9%- 17.7% of the entire Western population based on 2018 population estimates (2018 population range: 49,966-89,668 individuals). The situation becomes even more dire using population estimates in the 2019 Double-crested Cormorant Western Population Status Evaluation which was released in May 2020 and not incorporated into the DEIS. The 2019 Status Evaluation concludes that Double-crested Cormorant population estimates in the Western United States dropped 23% between 2018 and 2019 (population range: 31,849-59,708; ±95% confidence limit).[2] When USFWS updates this modeling, the proposed annual take level will represent 14.8% -27.8% of the total western population. In the Southern Population (Florida) which represents the smallest regional

[1] DEIS @ ii.

[2] Double-crested Cormorant Western Population Status Evaluation: Final Annual 2019 Report, US Fish and Wildlife Service, Portland Oregon.

population of Double-crested Cormorants, USFWS proposes to allow the killing of up to 1,228 Double-crested Cormorants annually representing 6.3%-6.6% of the total population (population range: 18,560-19,536 individuals). The proposed level of lethal control would more than double the annual average take allowed between 2007 and 2018 from 51,456 DCCOs/ year to 123,157 DCCOs/ year.[3] This would be 38,747 more birds than in the highest year between 2007 and 2018 when the highest take was recorded, and represents nearly a 140% increase over the average annual take between 2007 and 2018.

USFWS has presented four Action Alternatives in the DEIS, as well as a No Action Alternative which would preserve the status quo:

1. Alternative A (preferred alternative): Would allow for the lethal control of up to 123,157 Double-crested Cormorants nationwide, including 8,881 Double-crested Cormorants in the Western United States, and create a new special permit for states and tribes to manage lethal control on state and tribal lands, respectively. These entities would have discretion to determine when and where their allotted take of Double-crested Cormorants would be applied on lands that they control. USFWS would also continue to issue individual take permits under 50 CFR 21.41. Alternative A represents both a significant increase in the level of lethal take of cormorants in the United States relative to lethal control levels during the past decade, as well as a major transfer of oversight from the USFWS to the states and tribes. This alternative contains no provisions in the narrative text of the DEIS requiring use of non-lethal strategies prior to initiating lethal control, but the appendices indicate that non-lethal strategies would be required prior to lethal control. Alternative A sets take levels such that DCCO population levels would be reduced from current levels. Alternative A also creates a new basis on which take can be justified under the special permits issued to states and tribes, impacts on wild or stocked fisheries, which effectively provides a basis for killing cormorants anywhere at any time since all cormorants consume fish.
2. Alternative B: Would allow for the lethal control of up to 123,157 Double-crested Cormorants nationwide, including 8,881 Double-crested Cormorants in the Western United States, and creates a new Aquaculture depredation order that would apply within the boundaries of all state, tribal, and commercially owned aquaculture facilities in the United States, which would allow these entities to lethally control Double-crested Cormorants when found to be committing or about to commit depredation at these facilities or in close proximity to these facilities. Alternative B sets take levels such that DCCO population levels would be reduced from current levels.
3. Alternative C: Would allow for the lethal control of up to 123,157 Double-crested Cormorants nationwide, including 8,881 Double-crested Cormorants in the Western United States, and would create a combination of a new special permit for states and tribes (see Alternative A) and a new aquaculture depredation order (see Alternative B). Alternative C sets take levels such that DCCO population levels would be reduced from current levels.
4. Alternative D: Would allow for the lethal control of up to 123,157 Double-crested Cormorants nationwide, including 8,881 Double-crested Cormorants in the Western United States, and would create a new general depredation order which would apply to all lands and freshwaters

[3] DEIS @ 25.

within the contiguous United States. Alternative D would allow states, tribes, and USDA Wildlife Services to kill cormorants committing, about to commit, or to prevent depredations and would apply to aquaculture facilities, impacts to health and human safety, impacts to listed species, damage to state or tribal property and depredations of wild and publicly stocked fisheries. Non state and tribal entities could still apply for individual depredation permits. Alternative D sets take levels such that DCCO population levels would be reduced from current levels.

5. Alternative E (No Action Alternative): Alternative E would maintain the status quo in which USFWS issues individual depredation permits allowing the lethal take of Double-crested Cormorants in situations where DCCOs "are committing or about to commit" depredation or harm/ damage to (1) aquaculture facilities (2) federally threatened and endangered species or their habitats (3) human health and safety, and (4) personal property...(5) species of high conservation concern."[4] Alternative E sets a lower level of authorized total take than the four action alternatives such that take would be limited to a level that would not change cormorant population sizes.

A History of Relentless and Wanton Slaughter

It is deeply unfortunate that the USFWS is once again considering perpetuating an era of relentless and indefensible persecution of Double-crested Cormorants. There are few species in North America that have suffered more relentless persecution, and it is particularly troubling that much of the persecution in recent decades has been done under the authority of illegal permits issued by USFWS, the agency charged with ensuring their protection.

Nothing in the DEIS demonstrates a need to deviate from USFWS' standard practice of issuing individual permits for the take of species protected under the MBTA. Nor does anything in the DEIS suggest that USFWS has a plan to adequately remedy deficiencies identified by federal courts in previous attempts by the USFWS to shift from individual permits to broad scale permits or depredation orders.

In 2016, the United States District Court for the District of Columbia vacated two depredation orders issued by USFWS for DCCOs east of the Rocky Mountains. The Court found that the depredation orders that allowed shoot-on-sight killing of DCCO in 24 states east of the Mississippi was scientifically specious and a clear violation of NEPA. Specifically, the Court found that USFWS:

- Failed to take the required "hard look" at the environmental consequences of its actions;
- Ignored a range of suggested non-lethal alternatives
- Failed to adequately address how the action would benefit fish populations
- Failed to adequately consider the controversial nature of the action

Notably the Court also warned USFWS not to simply come back and recycle its failed rule. The Court wrote,

> *The Court concludes by advising FWS to take its remediation obligations seriously. The Service has proposed that the job can be done in seven months, during which time it will amend its NEPA*

[4] DEIS @ 15.

analysis, provide 30-day public comment, consider the comments, and prepare a final EA. The Court cautions FWS that one could view its proposal suspiciously. Plaintiffs have noticed that it sounds as if a "five-year extension of the existing Orders" is once again a foregone conclusion prior to the requisite assessment of environmental impacts and alternatives. On remand, FWS must make good on its promise to "develop reasonable alternatives that take into consideration the approaches suggested by . . . commenters" and "consider some alternatives from previous NEPA documents, some approaches that were suggested by commenters, and some new alternatives." The Court expects that FWS will use this consideration of alternatives to "foster excellent action," rather than as a "mere formality," FWS must also take a hard look at the orders' effects on cormorants by updating its assessment framework.

Unfortunately, this ruling did not come before the depredation orders allowed for the slaughter of upwards of 180,000 DCCOs, approximately 10% of the entire eastern population.

During the same time period that the USFWS was allowing the illegal killing of DCCO east of the Rocky Mountains, it also issued an illegal permit to kill nearly 11,000 DCCO and destroy more than 26,000 DCCO nests at the world's largest DCCO breeding colony at East Sand Island in the Columbia River Estuary for the stated purpose of protecting federally listed salmonid species. This single nesting colony represented 40% of the DCCO breeding population west of the Rocky Mountains. In this case, the US District Court for the District of Oregon found that the USFWS and US Army Corps of Engineers (Corps) failed to consider an adequate range of alternatives in their NEPA process, but still allowed the federal agencies to proceed with the action.[5]

In the process of permitting this action, the USFWS ignored the concerns of the Corps' lead cormorant biologist at East Sand Island[6] and intentionally suppressed a draft report by its own biologist (Haeseker et al. 2020) demonstrating that killing cormorants would not achieve the stated goal of benefiting the recovery of federally listed salmonid species.[7] USFWS knowingly approved of a lethal control action that its own modeling showed could drive western populations of cormorants below levels that it defined as sustainable.

The suppressed draft report by Haeseker et al. has now been peer reviewed and published and reaffirms the initial conclusion that cormorant predation of Columbia River salmonids is compensatory and does not benefit salmon recovery. Haeseker et al. (2020) write, "...the mortality due to avian predation is compensatory…Management efforts to reduce the abundance of bird colonies are unlikely to improve the survival or conservation status of steelhead [a surrogate for all listed Columbia River salmonid species]; however, results indicate that steelhead survival could be increased by hydropower management decisions that increase river flows and reduce juvenile migration delays."[8] The publication of this paper by its own biologists, which the US Fish and Wildlife Service was aware of and suppressed prior to approving the killing of nearly 11,000 cormorants and the destruction of more than 26,000

[5] AUDUBON SOCIETY OF PORTLAND, et al., Plaintiffs, v. UNITED STATES ARMY CORPS OF ENGINEERS, et al., Defendants. https://casetext.com/case/audubon-socy-portland-v-us-army-corps-of-engrs

[6] https://www.corvallisadvocate.com/2017/osus-imperiled-cormorant-research/

[7] https://www.opb.org/news/article/conservationists-say-feds-ignored-evidence-that-killing-cormorants-wont-save-salmon/

[8] Haeseker, S.L, et al. 2020. Avian predation on steelhead is consistent with compensatory mortality. Journal of Wildlife Management 1-15. DOI: 10.1002/jwmg.21880

cormorant nests, casts very serious doubt on the rationale and process by which the USFWS based its decision for pursuing this mass killing in the first place.

The relentless killing of cormorants at and around the East Sand Island colony ultimately resulted in the complete collapse of the colony in 2017 when, within days of lethal control being initiated at the colony, more than 16,000 cormorants abandoned their active nests in a single day and refused to return, an impact that went far beyond what was allowed under the permits issued by USFWS.[9] Surveys indicate that many of the East Sand Island cormorants (>5,000 breeding pairs) have moved further up the estuary to the Astoria-Megler Bridge where they are causing significant bridge maintenance issues and likely consuming more listed salmonids than they were at East Sand Island.[10] The story of the destruction of the East Sand Island cormorant colony can be seen here: https://www.youtube.com/watch?v=qL4xecmqIkg

Double-crested Cormorants have managed to survive at least two major population crashes, first caused by wanton slaughter near the turn of the 19th century and again in the mid-20th century due to contaminants. Recent actions of the USFWS over the past two decades have again put DCCO populations at unnecessary risk and resulted in the wanton slaughter of tens of thousands of protected birds. It is time for the US Fish and Wildlife Service to step into its mission to protect, not persecute, our native wild birds.

USFWS Should Select Alternative E (No Action Alternative)

We strongly recommend that the US Fish and Wildlife Service select the No Action Alternative (Alternative E). The current status quo, which would be perpetuated under Alternative E provides adequate opportunity to address cormorant conflicts while still providing a much stronger protective safety net for DCCO populations. Specifically USFWS currently issues individual depredation permits to kill DCCOs in situations where DCCOs "are committing or about to commit" depredation or harm/ damage to (1) aquaculture facilities, (2) federally threatened and endangered species or their habitats, (3) human health and safety, and (4) personal property."[11] This status quo would be preserved through adoption of the "no action alternative."

We believe that this is the correct approach to addressing conflicts between fisheries and Double-crested Cormorants. It contains several elements that we believe are essential to protecting Double-crested Cormorants that are lacking from all of the action alternatives. These essential elements include the following:

- It focuses lethal control explicitly on birds that are committing or about to commit depredation or harm/ damage. In order to be most effective, lethal control, to the degree that it happens at all, needs to focus on individuals causing damage as opposed to random killing.
- It identifies and defines a limited and specific set of types of conflicts that can be used to justify lethal control actions, as opposed to the Action Alternatives which allow for killing of cormorants simply for consuming wild or human-stocked fish.

[9] https://www.kgw.com/article/news/local/animal/portland-audubon-calls-for-end-to-cormorant-killing-program-after-colony-collapse/283-207237506

[10] https://www.courthousenews.com/oregon-feds-plan-to-save-salmon-by-killing-birds-backfired/

[11] DEIS @ 15.

- Individuals seeking permits must demonstrate that they have exhausted reasonable non-lethal strategies and must develop an integrated sustainable approach to managing cormorants over time. Lethal control should be viewed as a last resort, not a first option.
- It requires that the US Fish and Wildlife Service approve lethal control on a case by case basis, not with a blanket permit. This allows USFWS to ensure that lethal control is warranted, that non-lethal strategies have been attempted, that permitted entities are in fact choosing the least harmful and most effective strategies, that humane methods of control are being utilized, and that impacts to non-target species are being minimized. In short, it allows USFWS to apply its own expertise to conflict situations and meet its mission to protect and conserve cormorants while ensuring that applicants act responsibly and in accordance with the law.
- Finally, the status quo does not provide for depredation permits for wild and publicly stocked fisheries. We feel this exclusion is appropriate. It is not reasonable to conduct lethal control of DCCO simply for consuming their natural diets. Issuing permits allowing lethal control simply because cormorants are consuming fish is far too low of a threshold which would functionally allow for the killing of any cormorant. Absent a specific damage, public hazard, public health, or impact on imperiled species issue, it is not appropriate to kill native wildlife simply for behaving in a manner consistent with their own natural history.

These types of controls are particularly important with a species such as Double-crested Cormorants that have been vilified and scapegoated over decades by industry, other agencies, and the USFWS itself. Few avian species evoke more antagonist responses from some sectors than we have seen regarding cormorants and, under these circumstances, USFWS has in our opinion a heightened responsibility to ensure that lethal control activities involving cormorants are grounded in defensible, peer-reviewed science, modern management principles, and strong regulatory oversight.

Specific Comments on the Draft Environmental Impact Statement

1. **The US Fish and Wildlife Service's timeline for developing and approving the EIS suggests that it has already reached a decision and that the public process is merely a formality:**

Although USFWS waited four years to revisit depredation permits, it appears that it has ignored the admonitions of the Federal District Court for the District of Columbia to "take its remediation obligations seriously." USFWS is proposing a 7-9 month process to proceed from EIS scoping to the final record of decision. This is approximately the same length of process that drew concerns from the Federal District Court in 2016. That USFWS could seriously evaluate and analyze a full range of alternatives and meaningfully integrate public input in just 7-9 months remains as unrealistic now as it did then. It is notable that during the DEIS review process for the cormorant management plan for the Columbia River estuary, federal agencies received over 152,000 public comments, the vast majority of them opposed to lethal control.[12] That process, which focused on management at a single DCCO breeding colony, took more than 3-years from scoping to Final Record of Decision. It is not credible that the current process which covers management across the entire contiguous United States and has far more significant implications for DCCO populations could be accomplished in a matter of months. It appears that despite the admonitions of the Federal Court, USFWS is conducting another faux process designed to arrive at a predetermined destination. It is notable that USFWS failed to invite or include conservation stakeholders to regional meetings that laid the groundwork for this EIS, proceeded with minimum scoping and comment periods, even as the nation struggled with the onset of Covid-19, and has

[12] https://cdm16021.contentdm.oclc.org/digital/collection/p16021coll7/id/2202 (Chapter 1, page 33).

conducted minimal outreach and engagement activities. The DEIS reflects the expedited nature of this process. It represents one of the most superficial, vacuous, and substantively deficient DEISs that we have reviewed in recent decades.

2. USFWS failed to present an adequate range of alternatives and take the required Hard Look required by NEPA:

The USFWS presents four action alternatives in the DEIS, all of which significantly weaken existing restrictions on lethal control of DCCO. All four Action Alternatives set the exact same population thresholds for lethal control for DCCO and drastically reduce existing restrictions on use of lethal control and reduce USFWS oversight of lethal control decisions. By USFWS's own admission, "The main difference between alternatives pertain to the burden associated with accurately monitoring the authorized and actual take of cormorants throughout the year."[13]

A reasonable range of alternatives should at a bare minimum have included providing alternatives with (1) lower maximum take thresholds (PTLs) at a national and regional scale and (2) use of non-lethal strategies only to accomplish desired outcomes. Instead the Service provides the public with four very close variations on a theme: uniform increases in the allowed regional and national allowed kill levels across all four action alternatives and variations on strategies to reduce its regulatory oversight of those activities. We would note here that the Service has lost in court on the issue of failing to provide a reasonable range of alternatives when challenged on both the prior EIS for management of cormorants in the Columbia River estuary and on the EIS for depredation orders in the Central and Eastern United States. It seems that it is replicating that same failure again in the current DEIS.

The DEIS is also notable for its brief, superficial, and incomplete treatment of issues such as affected environment and environmental consequences of the proposed action. While the length of an EIS is not necessarily the measure of its quality, it is worth noting here that the Columbia River estuary FEIS, which only covered management in a small geographic area on less than half of the Pacific Flyway population of DCCOs compared to the current DEIS, was 1,099 pages long.[14] The current DEIS is a total of 151 pages long, including appendices. The current DEIS does not meet the quality or depth of coverage we would expect in an EA, let alone an EIS covering the entire US population of a protected species.

The list of issues the DEIS fails to cover with any rigor or, in some cases, at all is remarkable. These include but are not limited to:

- Monitoring (USFWS simply states that it will develop a monitoring plan)
- Monitoring Partners (USFWS notes that it "could" work with groups such as the Pacific Flyway Council, but provides no confirmed partners)
- Adaptive Management (completely unaddressed)
- Cost and Funding Resources for Monitoring (Completely undressed)
- Results of scoping (the body of the DEIS provides only raw numbers on responses; an appendix provides limited additional detail, but no substantive information on how scoping informed the DEIS)
- Non-lethal Conflict Resolution Strategies (No action alternative focuses primarily on non-lethal strategies; the document is unclear and in some cases confusing and conflicting on the degree to which non-lethal strategies must be integrated; no detail is provided about non-lethal strategies)

[13] DEIS at 55.

[14] file:///C:/Users/bsallinger2/Downloads/p16021coll7_2202.pdf

- Accidental Take of Non-target Wildlife (dismissed as a minimal risk without scientific support in contrast to prior DEISs that recognized this as a significant risk)
- Risk of Colony Disruption and Failure Due to Lethal Control Activities in or Proximal to Colonies (unaddressed)
- Issues Associated with Lethal Take During the Nesting Season, such as starvation of orphaned young and hidden elevated take levels due to nest failure caused by killing of nesting adults (unaddressed)
- Cumulative Impacts (USFWS acknowledges that multiple factors can impact DCCO populations and identifies several of those factors [climate change, oil spills, etc.], but does not address how they may impact distribution of lethal control allotments under the four action alternatives or how USFWS would respond within the framework if a major mortality event occurs)
- Economic Impacts (DEIS fails to quantify in any meaningful way the economic burdens created by DCCOs and how the proposed action alternatives would alleviate those burdens; DEIS fails completely to recognize and quantify potential economic benefits provided by DCCO)
- Existence and Aesthetic Values (USFWS claims that it has no studies and dismisses the issue by noting that values will vary "from person to person")
- Integrated Approaches (USFWS indicates that lethal control should be part of an integrated management approach but fails to describe what an integrated approach would look like or how it will hold permittees accountable)
- Linking Alternatives to Conflicts and Outcomes (largely unaddressed)

This last bullet is perhaps the DEIS's most fatal flaw. USFWS simply fails to create a meaningful nexus between the damage it is ostensibly trying to alleviate and the actions it is proposing, or to indicate how it believes the proposed actions will alleviate that damage. USFWS is proposing a massive, nationwide expansion of lethal control of Double-crested Cormorants and a major reduction in its own oversight responsibilities largely unmoored from the issues it claims to address and the outcomes it expects to achieve. USFWS asks the public to trust that it can raise the kill limits sky high, turn oversight of killing over to entities with limited resources and long-standing antipathy toward cormorants, and that positive outcomes will accrue. It gives the public no reason to believe that anything other than wanton slaughter will occur.

It is deeply troubling to witness the USFWS repeatedly dismiss the importance of evaluating the efficacy of a potentially massive expansion in lethal control of DCCO for actually accomplishing desired outcomes. For example, in the chapter on Affected Environment, USFWS dismisses the need to calculate benefits to wild and public stocked fisheries by stating "it is important to note that assessing the influence of predation on a fishery is a complex endeavor that requires vast amounts of data."[15] In the Chapter on Affected Environment, USFWS dismisses existence and aesthetic values by stating that studies are not available and these values "would vary significantly from person to person."[16] The DEIS names a variety of other factors that could significantly impact DCCO populations such as climate change, colony disturbance, oil spills, habitat changes, changes in prey base, contaminants, and predation. However, it provides exactly zero information or analysis of current data or trends on these potential cumulative impacts or how they have been incorporated into the Action Alternatives; the DEIS simply names them and asserts that it will develop a monitoring plan that will allow periodic

[15] DEIS at 33.
[16] DEIS at 71.

reassessment.[17] The DEIS dismisses impacts on co-nesting species by stating that co-nesting species that are disturbed in the process of cormorant "killing return in most instances," without any citation or supporting scientific basis. The DEIS also asserts that in most cases the entity conducting cormorant killing will "take measures to minimize disturbance to co-nesting species," again without any citation or referencing any policies or protocols that will help ensure that this will happen.[18] The DEIS dismisses accidental take of similar non-target species by asserting that it anticipates that these events "will occur infrequently" and "involve very few individuals," again without any citation, supporting scientific research, referencing of supporting policies or protocols that will help ensure that this will happen, or addressing the fact that accidental take of protected species is a violation of the MBTA. Finally, the DEIS fails to address the benefits of lethal control of DCCO for recovery of listed salmonids by failing to analyze the impact of lethal control for increasing the primary metric for evaluating recovery benefits, adult salmonid returns.[19]

USFWS has basically created a circular argument for significantly increasing lethal take of Double-crested Cormorants and substantially reducing its own oversight of this process. It argues that these steps are justified by impacts that DCCO are having, without providing adequate analysis of current impacts, and then bases success on the number of cormorants killed, rather than whether tangible benefits are actually realized. Killing cormorants essentially becomes an end unto itself, unmoored from the depredation it is supposed to remedy. There is nothing in the DEIS that suggests that USFWS has adequately evaluated impacts of DCCO predation, modelled the expected benefits that lethal control will accomplish, or intends to track whether actual benefits accrue. Nor has USFWS considered alternative strategies, including non-lethal strategies, or different levels of take, to determine whether the proposed Action Alternatives are the most efficacious strategies to reduce depredations.
In doing so, USFWS appears to be in contempt of the US District Court for the District of Columbia. Rather than using the Court's 2016 ruling, which invalidated a prior EIS pertaining to lethal control of DCCO, as a roadmap for how to proceed in compliance with the legal requirements of NEPA, USFWS has replicated each of the major deficiencies outlined by the Court. It has:

- Failed to take the required "hard look" at the environmental consequences of its actions
- Failed to consider a range of alternatives including non-lethal alternatives
- Failed to adequately address how the action would benefit fish populations
- Failed to adequately consider the controversial nature of the action

USFWS has failed to meet its basic obligations under NEPA to take a "hard look," consider a reasonable range of alternatives, and substantively consider the impacts of its decision. The lack of substantive information, analysis, and alternatives in this DEIS make it imperative that USFWS select Alternative E (No Action Alternative) rather than adopt an unsupported action alternative that would significantly increase lethal control of DCCOs while simultaneously reducing USFWS oversight.

3. **None of the Action Alternatives should be applied to the Western Population of Double-crested Cormorants**:

While we would urge USFWS to reject adoption of any of the action alternatives anywhere in the United States, we are particularly concerned about application to the Western Population (West of the Rocky Mountains). The western population of DCCO is an order of magnitude smaller than populations east of

[17] DEIS at 73.
[18] DEIS at 73.
[19] DEIS at 37.

the Rocky Mountains and was estimated to be 45,778 individuals in 2019.[20] USFWS proposes to allow the annual killing of up to 8,881 Double-crested Cormorants representing 9.9%- 17.7% of the entire Western population based on 2018 population estimates (population range: 49,966-89,668 individuals). The situation becomes even more dire using the 2019 Double-crested Cormorant Western Population Status Evaluation which was released in May 2020 and not incorporated into the DEIS. The 2019 Evaluation concludes that Double-crested Cormorant population estimates in the Western United States dropped 23% between 2018 and 2019 (2019 population range: 31,849-59,708; ±95% confidence limit).[21] When USFWS updates its modeling to include 2019 data, the proposed annual take level will represent 14.8% -27.8% of the total western population.

We do not believe, based on either the 2018 or 2019 population estimates, that USFWS' assertion that taking this level of cormorants in the Western United States is sustainable is credible. The modeling produced by USFWS was not peer reviewed; USFWS should subject its modelling to rigorous peer review using the most current population estimates prior to using it as basis for lethal take of this magnitude. USFWS should be given further pause by the fact that western population of Double-crested cormorants appears to be declining precipitously, that the largest DCCO nesting colony in the Western United States at East Sand Island which accounted for the majority of cormorant population growth in the Western US over the past two decades, has not recovered from a mass nest abandonment event in 2017, and that the current largest nesting colony is located now on the Astoria-Megler Bridge which is a heavily conflicted site due maintenance impacts caused by the cormorants. The current status evaluation indicates that the western population of Double-crested Cormorants merits serious concern. In light of these numbers, USFWS' proposal to kill as much as 27.8% of the population on an annual basis represents reckless indifference to ensuring sustainable populations of Double-crested Cormorants in the Western United States.

We fully concur with the concerns raised about applying the action alternatives in the Western United States submitted by Dr. Dan Roby during the cormorant EIS Scoping Process in March 2020 and incorporate those comments by reference: https://www.regulations.gov/document?D=FWS-HQ-MB-2019-0103-1284 Dr. Roby served as the lead investigator at the largest Double-crested Cormorant colony in the world at East Sand Island for more than a decade.

USFWS was correct in the past when it chose not to issue depredation or control orders for DCCOs in the west and instead retained a system of issuing individual depredation permits, due to the small size of the western population.[22] It is clear from the 2019 Status Evaluation that the western population has declined significantly since those decisions were made, and is be significantly more at risk today due to the collapse of colonies at East Sand Island in the Columbia River estuary, the Upper Klamath Basin, and the Salton Sea region. We do not see any data or logic on which USFWS could base a decision to deviate now from past decisions to retain individual permits in the West. USFWS acknowledges that, "Estimates of equilibrium population size for the Western population exhibit the most uncertainty because annual population size varies widely, and a management plan was implemented in the middle of the

[20] Double-crested Cormorant Western Population Status Evaluation: Final Annual 2019 Report, US Fish and Wildlife Service, Portland, Oregon

[21] Double-crested Cormorant Western Population Status Evaluation: Final Annual 2019 Report, US Fish and Wildlife Service, Portland, Oregon

[22] FEIS: Double-crested Cormorant Management Plan to Reduce Predation of Juvenile Salmonids in the Columbia River Estuary. https://cdm16021.contentdm.oclc.org/digital/collection/p16021coll7/id/2203

population-data-collection period where a large number of cormorants were lethally removed."[23] "Southern and western populations are much smaller and therefore may be more vulnerable to experiencing adverse population effects if take levels are exceeded."[24]

While a proposed annual lethal take of 8,881 Double-crested Cormorants (14.8% -27.8% of the western population) is far too aggressive of a target for a small population spread across 11 western states and a Canadian province (BC), the risk is further compounded by the proposal to delegate oversight of cormorant killing to state fish and wildlife agencies, federally recognized tribes, and USDA Wildlife Services (Alternative D only), which would by USFWS's own admission make it more difficult to track, monitor, and document lethal control activities, and would remove the expertise of the USFWS from decisions involving individual control actions. Additional risk is added by the fact that USFWS has not included a monitoring plan, adaptive management plan, funding resources, or committed partners in monitoring and managing this program. The existing monitoring program in the Western United States, which has been occurring on an annual basis since 2015, is set to switch to once every three years starting next year. Finally, it is also further exacerbated by the fact that USFWS only intends to produce population status reports every five years. If the lower confidence levels in the 2019 status evaluation are correct, USFWS could potentially allow the take of take of the equivalent of 139% of the total 2019 Western US cormorant populations before it even stops to evaluate the impact of its actions.

While each of these deficiencies is highly problematic across all cormorant regions, it is especially problematic in regions where cormorant populations are already small. Each of the action alternatives creates a significant potential to trigger rapid declines in regions with small populations, which could drive DCCO populations below sustainable levels and result in a need to list the DCCO in the future. In short, the action alternatives proposed by USFWS create a recipe for unsustainable lethal management in the Western US:

- Small existing population levels that are declining.
- Significant declines most at the largest cormorant colonies in the West (Columbia River Estuary, Salton Sea, Upper Klamath Basin). Worth noting is that the DEIS identifies the East Sand Island colony in the Columbia River estuary, which collapsed in 2017 and never fully recovered after the initiation of federal control activities, as the primary source of population growth in the Western US between 2007 and 2017.[25]
- Largest current nesting colony in the Western United States located on the Astoria-Megler Bridge which is a highly conflicted sites due to maintenance impacts caused by cormorants.
- Massive increases in annual take levels to 14.8% -27.8% percent of the entire western population.
- Removal of USFWS expertise and oversight from individual lethal control actions to ensure control activities are warranted and designed to minimize unintended consequences such as colony disruption or failure.
- Shifting of oversight of lethal control activities to state fish and wildlife agencies and federally recognized tribes, many of which have aggressively advocated for increased lethal control of DCCOs and which serve not only as regulatory entities, but also manage facilities such as fish hatcheries that are impacted by DCCO predation (conflict of interest issues).
- Failure to adequately assess other potential cumulative causes of decline such as climate change, colony disruption, oil spills, contaminants, predation, etc.

[23] DEIS at 55.
[24] DEIS at 55.
[25] DEIS at 56.

- Failure to include in the DEIS a monitoring plan, adaptive management plan, funding estimates and sources to support monitoring, or confirmed partners.

There are multiple elements of the modelling analysis that undermine USFWS's assertion that Double-crested Cormorant populations in the Western United States can sustain take of as much as 14.8% - 27.8% of the population on an annual basis. First, there is tremendous uncertainty in the estimated population size of Double-crested Cormorants in the Western US. In the DEIS, the USFWS estimates that the western population could range from 49,966 individuals to 89,668 individuals. This represents a remarkable degree of uncertainty about population size.[26] Second, the impacts of the collapse of the colony at East Sand Island, recognized as the primary source of cormorant population increases in recent decades, are not fully understood. Third, cormorant populations appear to be declining in in the Western US. Fourth, USFWS fails to adequately factor in other potentially significant causes of cormorant population declines, such as illegal take, illegal harassment of colonies, ongoing hazing activities at multiple locations that suppress cormorant nesting potential, and threats such as oil spills. Finally, USFWS fails to account for less rigorously supervised permitted take that could result in multiplier effects in terms of number of birds taken through orphaning of young, colony disruption, colony failure, delayed or suppressed nesting, and reduced nesting success.

For reasons cited throughout these comments, none of the action alternatives should be adopted anywhere in the United States, but they would be exceptionally problematic in the Western United States.

4. **USFWS should retain complete oversight of lethal control permits through the existing individual permit system**:

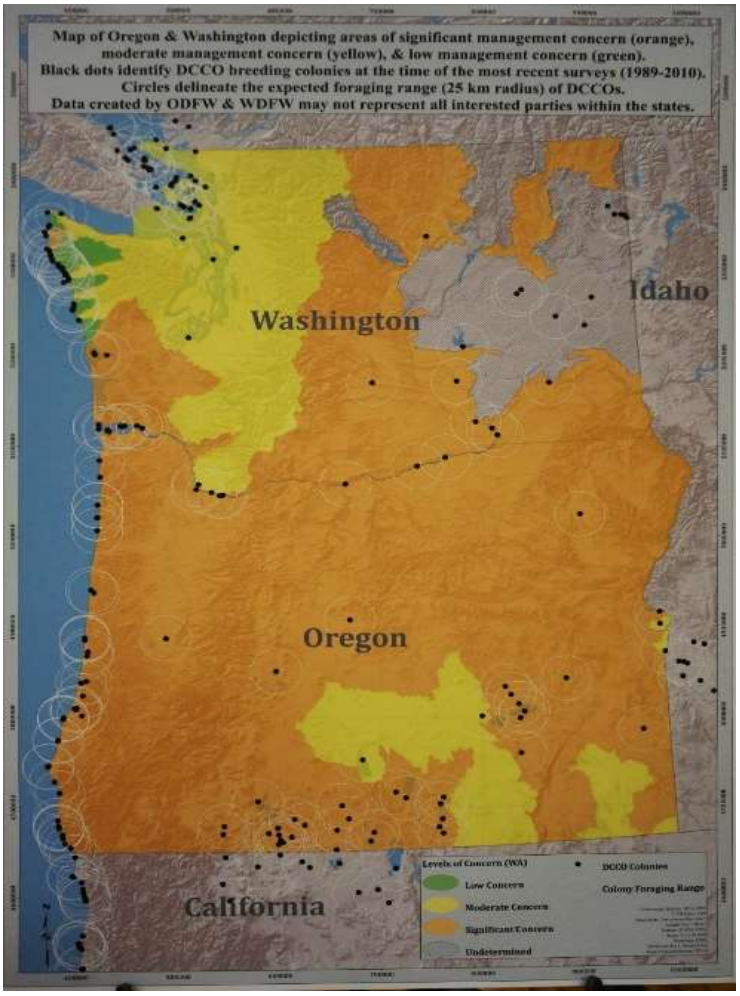
The existing permit structure allows USFWS to evaluate and approve or disapprove individual requests to control DCCO. It allows USFWS the opportunity to demand more scientific data to justify permit applications,[27] to require the application of alternative non-lethal hazing strategies prior to use of lethal control strategies, to evaluate the efficacy of the control action to achieve the stated benefit, the attachment of specific permit conditions regarding the timing, manner and quantity of birds taken, etc. Under each of the action alternatives, USFWS would delegate this authority to states, tribes, and USDA Wildlife Services (Alternative D only), none of which have anywhere near the same level of resources, expertise, or statutory responsibility for protecting this species. Each of the action alternatives would significantly increase the probability of deleterious impacts on DCCO populations, including but not limited to the following:

- Use of lethal control as a first alternative without first trying non-lethal approaches
- Ineffective application of lethal control in ways that fail to achieve stated outcomes
- Inhumane methods utilized to kill cormorants
- Unanticipated impacts on non-target species
- Unanticipated impacts on local or regional cormorant populations
- Destruction of nesting colonies
- Increased animosity/ decreased stewardship toward cormorants fueled by continued antipathy/ indifference on the part of the agency charged with protection

[26] DEIS at 25.

[27] This has occurred for example in the denial of requests for lethal control permits from the Oregon Department of Fish and Wildlife.

- Increased illegal take and underreporting of take of cormorants due to difficulty of assessing legality of control activities at the time of the action (since no permit or authorization from USFWS is required at the time of the action)



While we have strongly disagreed with past individual permits issued by USFWS allowing lethal removal of DCCO, we believe that delegating this authority to state agencies and tribes would be far more problematic. Many state fish and wildlife agencies lack both the resources and expertise to take on this responsibility. Additionally, many state fish and wildlife agencies would be more susceptible than the USFWS to extreme political pressure to allow for increased take of DCCOs. Oregon stands as a case in point. Oregon Department of Fish and Wildlife (ODFW) is chronically underfunded to manage the state's wildlife resources. This is particularly the case with regards to non-game species which comprise 88% of the state's wildlife but historically receive approximately 2% of the agency budget. ODFW has minimal resources specifically devoted to proactive resolution of human-wildlife conflicts. Recent surveys indicate a growing chasm between the ways ODFW staff and general public value wildlife.[28] We have witnessed ODFW under intense political pressure from Oregon legislators to increase control activities related to DCCOs and we have seen the Oregon legislature take overt punitive action against the agency when it has failed to comply with political pressure. Most notably, ODFW has consistently advocated for more aggressive actions against DCCOs than has been supported by the USFWS. In the case of the Columbia River estuary EIS, ODFW advocated for an even more aggressive strategy than the plan that was ultimately approved, specifically advocating for lethal take outside the Columbia River estuary, should colony abandonment occur. ODFW also has listed estuaries at Nehalem Bay, Tillamook Bay, Nestucca Bay, Alsea Bay, Yaquina River, Siuslaw River, Umpqua River, Coos Bay, Coquille River, Rogue River, and Coastal Lakes at Siltcoos, Tahkenitch and Tenmile as sites where additional lethal control may be necessary, functionally expanding lethal control to the majority of the Oregon Coastline.[29] ODFW has previously sought lethal control permits to kill cormorants in some of these locations and been turned down by USFWS due to a lack of supporting data regarding impacts on protected fish species. The adjacent graphic, included in the Columbia River estuary EIS,

[28] *America's Wildlife Values: The Social Context for Wildlife Management in the United States* produced by the Western Association of Fish and Wildlife Agencies et al. which found that ODFW staff is heavily dominated by "traditionalists" while the public in increasingly dominated by "mutualists" to the extent that a nearly 30 percentage point gap now exists between the values held by the majority of agency staff and the values held by the public at large. https://content.warnercnr.colostate.edu/AWV/OR-WildlifeValuesReport.pdf

[29] ODFW Comments: https://cdm16021.contentdm.oclc.org/digital/collection/p16021coll7/id/2202

demonstrates the level of antipathy directed towards DCCOs by the ODFW: It shows virtually the entire State of Oregon, including the entire Oregon Coast as an area of significant management concern for DCCOs and the remainder of the state as an area of moderate management concern for DCCOs. Based on performance to date, delegating authority to ODFW to permit killing of cormorants in Oregon would put the Oregon cormorant population at extreme risk and result in killing of cormorants that goes far beyond what is justified based upon the available scientific data.

5. USFWS Fails to Provide a Reasonable Basis Allowing Lethal Control of Double-crested Cormorants Based on Impacts to Wild or Stocked Fisheries

USFWS is proposing under Alternatives A, C, and D to include predation on wild and publicly stocked fisheries as a basis for allowing lethal control of Double-crested Cormorants. This represents a major expansion of the conflicts that would be considered legitimate to justify killing DCCOs. Rather than predicating take permits on specific conflict situations, USFWS would now make the basic biological function of eating fish as a basis for killing cormorants. Because DCCO are piscivores, USFWS essentially proposes to make this fact a legitimate basis to issue a take permit for any Double-crested Cormorant in any location in the lower 48 states simply for fulfilling the biological necessity of feeding itself. USFWS is making the consumption of fish by cormorants a conflict in and of itself. This represents a stunning and deeply troubling precedent with profound implications not just for Double-crested Cormorants, but for wildlife management in general.

Under the existing individual permit system USFWS does not issue depredation permits based on impacts to non-listed wild or human stocked fisheries. Instead it focuses on specific conflicts such as depredation at fish hatcheries, fish farms, damage to property, human health issues, impacts to listed species, etc. This is consistent with the USFWS's *2017 Environmental Assessment for Issuing Depredation Permits for Double-crested Cormorant Management*.[30] USFWS based its decision not to include impacts on free-swimming fish populations on the following reasons:

> *The science to-date has limited examples demonstrating causality between the presence of cormorants as a sole or primary limiting factor for declines in free-swimming fish on a landscape level. Available information indicates that impacts are likely to be site specific. We have limited information that would allow us to make determinations regarding whether cormorant depredation on free-swimming fish populations is compensatory or additive to other demographic processes among fish populations, such as recruitment, mortality from other sources, or distribution. In some systems, the issue is further complicated by the introduction of invasive species that can change relationships among species within a system…"*

USFWS fails entirely to justify the decision to potentially reverse this position in the current DEIS. In fact, the narrative provided by USFWS would seem to reinforce the 2017 position rather than justify its reversal. USFWS writes,

> *While there are many examples of cormorants depleting prey around colonies, to date, no studies show that cormorants have ever depleted fish populations severely enough to pose an extinction risk (Wires 2014). Where populations have already declined due to overharvest, habitat degradation, hydropower development, and other anthropogenic causes, cormorant*

[30] Environmental Assessment for Issuing Depredation Permits for Double-crested Cormorant Management at pages 14-15 (2017) https://www.fws.gov/regulations/cormorant/sites/default/files/2020-02/CormorantEA.pdf

predation can be a factor limiting the recovery of some ESA listed populations (NOAA 2014a). However, the need to manage conflicts associated with cormorants does not arise because they threaten the survival of fish populations, but because avian predators like cormorants can affect local fishery yields and economically important fisheries are often prioritized as conservation targets by natural resource agencies (Wires, 2014). The distinction between cormorant impacts to fish populations and cormorant impacts to a fishery is an important one because there has been much controversy regarding whether cormorants, in and of themselves, have the ability to affect an entire fish population. A fishery is defined not only by the particular species or stock of fish, but also by the human users, the harvest gear, and the geographic scope. Therefore, it is possible for cormorant predation to lower fish harvests within an area, but be unimportant to, or even improve, the overall health of the fish population (Wires 2014). In other words, resource agencies can achieve their fish population goals (especially when the population resides in a large water body such as a Great Lake) and still be unable to attain localized fishery-centric objectives where large numbers of cormorants exist.[31]

USFWS goes on in the following paragraphs to dismiss public concerns that resource agencies have failed to show that avian-suppression measures have had an "appreciable impact on fish populations that such measures were supposed to protect." The basis for this dismissal is that "it is important to note that assessing the influence of predation on a fishery is a complex endeavor that requires vast amounts of data." USFWS then lists in bullet format all the data is would need, but does not plan to obtain, in order to scientifically justify this lethal control. Finally, USFWS concludes that "while many other environmental factors and human-induced factors affect fish populations, cormorants may have an impact at a localized scale and it is not biologically justified to assume that cormorants have no negative impacts on local fisheries."[32]

It is important to stop here and consider the implications of what the Service is proposing. It potentially intends to issue depredation permits to kill cormorants on the sole basis that this piscivorous species eats fish, even though the Service recognizes that there is not a single study ever produced linking cormorant predation to fish extinction risk, and even though the Service recognizes that cormorant predation may be irrelevant or even beneficial for the overall health of the fish population, and even through the Service recognizes that there are myriad other factors affecting fish populations, and even though it recognizes that it will be unwilling or unable to obtain scientific data to support lethal control actions based on this concern. In short, the Service is willing to allow mass killing of cormorants simply because they eat fish and the possibility that this consumption may in some instances at some locations have unquantified negative impacts on some fish.

This proposal represents the antithesis of science-based wildlife management decision-making. It is arbitrary and capricious and unsupported by facts. It is the antithesis of ecosystem-based approaches to wildlife management, which at their core should recognize that species interact and impact one another—that is how ecosystems function. The implications of this proposal are profound. USFWS abandons any pretense here of serving as a steward of our nations wildlife and instead converts itself into a pest management agency willing to service the economic goals of a small subset of business interests with complete disregard for science or the welfare of the species it is charged with protecting. It would establish a new paradigm in which it allows the mass lethal control of a protected species simply because it might have a negative impact on an economic interest at some point. It raises grave

[31] DEIS at 33.
[32] DEIS at 33.

concerns not only for the welfare of DCCO populations, but also populations of other species that USFWS is charged with protecting because the same vacuous logic could be applied to any species that consumes a commercially valuable species as part of its diet. It epitomizes the concept of wanton predator control.

6. The DEIS Fails to Consider More than One Level of Lethal Control in the Action Alternatives:

All four action alternatives set the exact same national and regional thresholds for allowed lethal take of Double-crested Cormorants. As USFWS acknowledges, the variation in the four action alternatives presented in the DEIS focuses primarily on the "burden associated with accurately monitoring the authorized and actual take of cormorants throughout the year."[33] USFWS fails to meet its obligations under NEPA to provide a range of reasonable alternatives. While monitoring is an important component of this management strategy, the core issues at play in each of the action alternatives is the significantly elevated threshold for lethal control of Double-crested Cormorants and the transfer of regulatory oversight to other entities. Any range of reasonable alternatives must under these circumstances include at least a range of thresholds for allowed lethal take. This is all the more important given that USFWS is proposing to reduce its oversight of lethal take of DCCO. USFWS should have provided and evaluated more conservative lethal control levels both as a strategy to reduce risk to DCCO populations and in terms of the efficacy of lower levels to achieve desired outcomes. For example, would a threshold of 50,000, 80,000, or 1000,000 birds have been sufficient to achieve desired reductions in depredation while also creating less risk for DCCO.

USFWS also should have considered alternatives that eliminated transfers of regulatory oversight in the Western and Southern regions, where DCCO populations remain low and more vulnerable to becoming unsustainable do to overutilization of lethal control strategies as well as other risk factors.

In adopting a one size fits all approach to all action alternatives for the level of lethal take and to all regions within each action for the transfer of regulatory oversight, USFWS failed to consider reasonable and important alternatives that could have still met cormorant management goals but provided greater protection for cormorant populations.

7. Monitoring Requirements are Inadequate:

The Service acknowledges that monitoring has "not occurred consistently across multiple federal, state, tribal, commercial, or private partners in the past" and that "population monitoring, tracking authorized take, and the reporting of actual take become increasingly difficult as the number of entities taking cormorants increases."[34] Despite these challenges, the Service failed to develop a population-monitoring program as part of this DEIS. Nor has it secured partners to assist in this monitoring. Nor has it adopted an adaptive management plan with thresholds that would trigger reevaluation of potential take levels (PTLs) if population levels fall below anticipated levels, if monitoring is incomplete or inadequate to support a high level of confidence in population estimates, or if other unexpected events occur that potentially impact the sustainability of DCCO populations. The Service simply speculates that "Flyway Councils could assist in the development of a coordinated monitoring program for cormorants….The Service and Flyway Councils can work together…."[35] It is remarkable and deeply troubling that the Service would publish a DEIS that proposes to kill up to 123,000 cormorants per year, including as much

[33] DEIS at 55.
[34] DEIS at 56.
[35] DEIS at 57.

as 28% of the entire western population per year, without a monitoring plan, adaptive management plan, or partners included in the document. It is impossible to evaluate the proposed alternatives with these critical components omitted from the DEIS. These omissions stand in stark contrast to the FEIS produced for the lethal control of DCCOs in the Columbia River estuary in which USFWS predicated its confidence that it could maintain sustainable DCCO populations in the Western United States based upon the inclusion of rigorous monitoring and adaptive management plans. It is impossible for USFWS to credibly assert that it is meeting its obligations under the MBTA to ensure that permitted take levels do not result in unstable population levels for protected bird species, when it fails to develop or include essential mechanisms to ensure stability in the DEIS.

Action Alternatives B, C, and D represent even less acceptable options as they not only fail to include monitoring and adaptive management plans but also result in increased levels of uncertainty in reporting and tracking of cormorant killing relative to Alternative A.

Only Alternative E (No Action Alternative) includes reasonable monitoring and tracking provisions. Under Alternative E, USFWS would be solely responsible for issuing individual permits for lethal take of DCCOs, tracking actual take through required annual reporting, and being able to adjust take levels in a timely manner in the event of unexpected population declines.[36] Alternative E not only represents the only credible alternative to ensure sustainable DCCO populations, it also represents the only alternative in the DEIS that presents a complete description of how USFWS will implement its DCCO management program.

In presenting four action Alternatives, all of which omit any sort of meaningful plan for how the USFWS intends to monitor the impacts, USFWS seems more concerned about its regulatory burden than it is about the welfare of the species it is charged with protecting.

8. USFWS' Reporting Plan is Inadequate

According to the DEIS, USFWS plans to issue an annual report detailing the amount of take that occurred. However, it will only produce a report providing analysis of population monitoring efforts every five years. The USFWS states that these five-year reports will be used to "promote transparency" about the efficacy of the "conflict management tool." Specifically the reports would provide, "(1) updated cormorant population status and trends; (2) reported lethal take of cormorants; (3) an updated PTL model; (4) the state of the conflict and need for continued management, as reported by requests for depredation permits (both individually, programmatically, by participating states and tribes, and (conflict management decision and justification for either continued management or a proposed new management approach, if appropriate and needed."[37] There are several serious flaws with this approach.

Five years is far too infrequent to conduct detailed evaluation of the program. Instead this level of analysis needs to occur on an annual basis. USFWS is proposing action alternatives that would dramatically increase the level of lethal take of DCCO on both a national and regional basis while simultaneously reducing its ability to track and monitor lethal control activities. Failure to closely track, monitor, evaluate, and adjust this program is a recipe for putting DCCO populations into catastrophic decline. This stands in stark contrast to the approach that the USFWS took with multiyear cormorant lethal control activities in the Columbia River estuary, an action that was far more focused and limited

[36] DEIS at 59.
[37] DEIS at 125.

than what the USFWS is proposing in the current DEIS. In the Columbia River estuary, the USFWS required annual monitoring and evaluation of the program and included an adaptive management plan with explicit thresholds that would trigger further analysis and/or project modification if thresholds were reached. Annual permits to continue lethal control activities were predicated on this analysis. In the current DEIS, the USFWS appears to be taking a far more irresponsible approach of waiting half a decade to evaluate the efficacy and impacts of its program.

It is important to put five years in perspective. The USFWS proposal to allow take of as many as 123,147 cormorants each year is a 140% increase over the annual average it allowed to be taken between 2007 and 2018. If current national population estimates are accurate, the USFWS could allow for the take of as many as 615,735 DCCOs over the course of five years. This would represent 71% of the low end estimate and 63% of the high end estimate of the entire current population of Double-crested Cormorants in the contiguous U.S. In the Western Region, where the USFWS explicitly recognizes that the population is small and more vulnerable to overkill, the USFWS would allow up to 44,405 DCCO to be killed over the course of five years. This would represent 89% of the low end estimate and 50% of the high end estimate of the entire current population of Double-crested Cormorants in the Western United States. These numbers do not even factor in other potential mortality events or underestimates of the impact of lethal control activities due to colony disruption and orphaning of eggs/ young. This scale of lethal control, while appalling in its own right, becomes an exercise in wanton abdication of USFWS's core mission to protect the nation's wildlife, unless the management program is very closely monitored, evaluated, and adjusted on an annual basis.

9. Action Alternative A (Preferred Alternative) Fails to Meet USFWS Assurances that Non-lethal Management Strategies would be Integrated into all Alternatives

Despite assurances in the webinars provided by USFWS for the scoping portion of this process that "non-lethal methods will continue to be used and recommended where appropriate,"[38] preferred Alternative A appears from the narrative description to eliminate the current requirement that entities considering lethal control of cormorants must first attempt to utilize non-lethal strategies. This may be the result of unclear writing, as Appendix D does state that in fact all four action alternatives would require that lethal control only be permitted after alternative non-lethal strategies have been attempted.[39] This apparent discrepancy needs to be resolved in the FEIS if Alternative A is advanced. If in fact the USFWS does not intend to retain the requirement to attempt non-lethal strategies prior to the use of lethal control, it needs to provide a clear explanation for why it has dispensed with this requirement. The result of removing this requirement would likely be that entities receiving special permits would move immediately to lethal approaches. This could actually result in increased conflicts over time due to the fact that sophisticated non-lethal strategies, such as exclusion, hazing, etc., can reduce depredation on a sustained basis, while lethal control if not sustained or supplemented by non-lethal strategies can result in ongoing depredation problems as new birds replace those that were lethally removed. USFWS should include a clear requirement that entities considering lethal control strategies be able to demonstrate both that they have attempted and exhausted reasonable non-lethal strategies and that they have a long-range plan to reduce conflicts in the future. Ongoing killing of DCCOs to resolve site-specific depredation issues should not be viewed as a sustainable or appropriate management strategy.

[38] USFWS Online Webinar: https://www.fws.gov/birds/management/managed-species/double-crested-cormorants.php

[39] DIES at 88.

10. USFWS should Require that Permittees (individual or special) Make Progress toward Non-lethal Solutions to Conflicts as a Condition of any Lethal Take Permits that are Issued

USFWS should avoid a situation in which perpetual cycles of lethal control become normalized. USFWS appears to be intending to base its assessment of the "state of conflict and need for continued management" specifically on requests for depredation permits.[40] This is not a reasonable or sustainable standard, but rather one which will with high probability result in persistent killing at the highest levels for the foreseeable future. Based on the animosity directed at Double-crested Cormorants by some constituencies, much of it hyperbolic and scientifically unsupported, we expect that USFWS will continue to see large numbers of requests for depredation permits over time. It should also be recognized that many permit seekers would prefer lethal to non-lethal solutions because it is often easier and cheaper to simply kill birds than it is to actually implement real sustainable solutions. While at first blush, it may sound like a reasonable approach to base extension of this program on permit requests, it in fact sets-up a bizarre paradigm in which USFWS continually manages populations downward to minimum sustainable levels as a strategy to alleviate conflicts. An agency that should be managing for thriving wild populations instead is putting itself in the position of managing populations to the edge of sustainability in order to appease special interests. It is essentially making lethal control actions its default position, rather than its position of last resort in managing cormorant populations. USFWS must set a much higher bar. If in fact the USFWS adopts any of the action alternatives, it should be with a clear expectation that the permittees (both individual and special permits) move toward sustainable non-lethal strategies over time. As the USFWS notes in the DEIS, "Lethal management should be considered as part of an integrated approach to managing cormorant conflict and used when other methods fail to resolve conflicts."[41] Lethal control should always be viewed as a temporary solution rather than a permanent condition. Remarkably under Alternative A and C, states and tribes are not even required to monitor the efficacy of their actions in terms of resolving conflicts. The DEIS states that under the "new special permit, [states and tribes] would be expected to prioritize their allotted take to entities/ instances most in need of conflict resolution, and they would be **encouraged** (emphasis added) to conduct monitoring to assess the efficacy of control activities."[42] It is frankly unconscionable that the USFWS would issue broad special permits for mass killing of Double-crested Cormorants, but leave it up to the permittees as to whether they monitor whether their killing activities are effective in resolving their concerns. Permittees should be required to put in place long-term, sustainable strategies that alleviate conflicts through structural changes, habitat modification, non-lethal hazing, and other non-lethal methods as quickly as reasonable and should be held accountable, not issued serial permits.

11. More Detail Needs to be Provided Regarding the Methods of Take

The DEIS indicates that the USFWS will permit multiple methods of take, including firearms, traps, egg and nest manipulation, and other methods that are consistent with wildlife damage management programs.[43] This information is contained in Appendix D: Standard Authorization Conditions for Take. However, the only method discussed specifically in the body of the DEIS is firearms. USFWS must provide substantive analysis of other methods of take as well. Of greatest concern is authorization to manipulate eggs and nests. Entry into nesting colonies is a high-risk endeavor that can have lethal implications far beyond the individual birds or nests being targeted. There is considerable risk of significantly elevated take levels due to disruption of nesting activities, including temporary and permanent abandonment of nests by parents. This can result in death of eggs or chicks caused by

[40] DEIS at 125.
[41] DEIS at 88.
[42] DEIS at 126.
[43] DEIS at 89.

exposure, predation of unattended nests, reduced food deliveries, starvation, etc. This is not a hypothetical concern. Active cormorant nest colonies require careful monitoring or management to prevent disruption and colony abandonment. At East Sand Island, for example, the colony is off limits to the general public. Authorized visitors are instructed to walk single file with their hands behind their backs as they draw closer to the colony, then enter shade cloth tunnels for several hundred feet before emerging in the colony within bird blinds, in order to enter the colony without causing a major disturbance. During lethal control activities at the colony during 2017, despite what USFWS argued were adequate protections, 16,000 birds permanently abandoned their nests within a few days of the onset of lethal control activities. If the USFWS is going to permit any sort of control activity proximal or within active cormorant colonies, it should provide an extensive description of the protocols it will require to avoid colony disruption/ abandonment, ongoing monitoring it will require during the nesting season to document changes in the colony due to lethal control activities, impact thresholds that would trigger curtailment of activities (for example documented flushes), and how potential secondary mortalities due to nest failure, orphaning, and disturbance will be accounted for in the overall accounting of permitted take. For example, how would the USFWS account for take numbers if a lethal control action at a colony designed to take 25 nests resulted in disturbance that caused the failure of 100 nests?

12. Use of High Pressure Hoses Should Not be an Allowed as a Lethal Control Method

The USFWS lists the use of high pressure hoses as an acceptable strategy for destroying active cormorant nests during the construction phase of nest building in trees. We urge the USFWS to remove this method from its list.[44] We are concerned about a number of possible outcomes including (1) the potential to cause cormorants to abandon entire colonies due to the intensity of the destructive activity, thereby resulting in the loss of an entire season of productivity, (2) the potential to misjudge the status of the nest from the ground and destroy a nest with either eggs or nestlings, (3) the potential to kill or injure adults engaged in nest building activities, and (4) the potential to cause take at nearby nests that may already be active and fail due to the level of disturbance. Destroying nests with fire hoses during the early phases of nesting season is in our opinion ill-advised.

13. Use of Cervical Dislocation Should Not be an Allowed Lethal Control Method

We are deeply troubled that USFWS would include cervical dislocation ("where a live bird is stretched and the neck is hyper-extended and dorsally twisted to separate the first cervical vertebrae from the skull.")[45] as an acceptable method of euthanasia. USFWS cites the American Medical Veterinary Association approving of this technique as a humane method of euthanasia.[46] In fact, what the AVMA actually says is that cervical dislocation, "when performed by well-trained individuals on appropriate animals, appears to be humane. However, there are few scientific studies available to confirm this observation." It goes on to state that cervical dislocation is "acceptable with conditions for euthanasia of small birds...when performed by individuals with a demonstrated high degree of technical proficiency." In the absence of demonstrable proficiency, larger animals should be anesthetized prior to cervical dislocation. The AVMA notes that in poultry there is evidence that cervical dislocation may not cause immediate unconsciousness, that consciousness may last up to 30 seconds after dislocation[47] and recommends other methods be considered. There is nothing humane about capturing a terrified wild

[44] DEIS at 127.
[45] DEIS at 127.
[46] 2020 AVMA Guidelines for the Euthanasia of Animals at page 44.
https://www.avma.org/sites/default/files/2020-01/2020-Euthanasia-Final-1-17-20.pdf
[47] 2020 AVMA Guidelines for the Euthanasia of Animals at page 10.
https://www.avma.org/sites/default/files/2020-01/2020-Euthanasia-Final-1-17-20.pdf

bird, holding it up in the air, stretching it out so that its neck is hyper-extended, and then twisting it until its skull separates from its vertebrae, and waiting for potentially as long as 30 seconds for the bird to lose consciousness. Further, the Double-crested Cormorant is a large, long-necked bird with significant neck musculature, making cervical dislocation exceptionally difficult. It is both appalling and irresponsible that USFWS includes this method in the DEIS at all, let alone without any contextual information. There is simply no reason why cervical dislocation should ever need to be used in a well-planned, well-executed, legally permitted lethal control action. We urge the USFWS to remove this method altogether from the DEIS

14. More Detail Needs to be Provide Regarding Lethal Control Activities Occurring during the Nesting Season

The DEIS indicates that USFWS will allow states and tribes with a special permit to conduct take "during anytime of the year on lands under the jurisdiction of the State or Tribe."[48] This is mentioned in Appendix D: Stand Authorization Conditions for Take. However, this issue receives no attention at all in the body of the DEIS. Allowing take during cormorant nesting season raises significant issues of concern. First, killing cormorants during nesting season can result in inhumane outcomes if killing of adults with young results in slow starvation of young who are no longer being provided with food. Second it can result in significant undercounting of actual take levels if the killing of a single bird results in a nest failure or death of nestlings or dependent fledglings. For example, it could result in a situation where a foraging bird is shot away from the nest and is documented as a single mortality. If that bird has an active nest, however, it may have as many as seven eggs or young which also will not survive. An accurate accounting of take would list eight individuals, rather than one individual. We urge USFWS to prohibit lethal control activities during the nesting season altogether. If the USFWS does intend to permit lethal control activities during the nesting season, however, it must describe protocols the will be enforced to minimize inhumane outcomes, such as starvation of young cormorants, and also how it intends to account for the hidden take in situations where there is a reasonable probability that eggs/ young will also die as a result of adult take.

15. Use of Lead Shot Should Not Be Permitted

We are deeply concerned that USFWS proposes to allow the use of lead ammunition in situations where "use of a shotgun in inadequate."[49] USFWS acknowledges that the use of lead shot can have substantial impacts on waterfowl, predators, and scavengers and includes a prohibition on the use of lead shot as part of the standard conditions of migratory bird permits issued pursuant to the MBTA for the lethal take of birds, including depredation permits. [50] In the DEIS, the USFWS goes to considerable lengths to dismiss concerns about the use of lead shot, but its arguments are not convincing. First, despite arguments that missed targets would be relatively infrequent, carcasses would in most cases be removed from the environment, and carcasses could be disposed of in a manner that limits exposure to other animals, the USFWS must admit in each scenario that some level of risk persists. The analysis provided by the USFWS in the DEIS is remarkably vague and unsupported by scientific research. Second, and perhaps more importantly, the USFWS fails to provide any explanation for why it does not require the use of non-toxic ammunition not only for shotguns, but also for rifles, handguns, and pellet guns used to kill cormorants. Non-toxic (non-lead) ammunition is readily available not only for shotguns but also for a wide range of firearms. There is simply no good reason why the USFWS would not require that in all instances involving the lethal control of DCCOs, regardless of the type of firearm utilized, that non-

[48] DEIS at 89.
[49] DEIS at 47.
[50] DEIS at 47.

toxic ammunition would be required. The USFWS's failure to address or explain why it would allow the use of lead ammunition in situations involving firearms other than shotguns when non-lead ammunition is available represents a significant omission.

16. Take of Non-target Protected Avian Species is Inadequately Addressed

The DEIS fails to adequately address the take of non-target, protected migratory birds. First the DEIS fails to provide any substantive analysis of the actual risk of accidental take of non-target migratory birds. USFWS dispenses with this serious concern in a single paragraph spanning less than 110 words.[51] The risk of lethally impacting non-target species is real and serious. Non-target lethal take could occur through accidental killing of species similar to DCCOs (for example, Pelagic Cormorants, Brandt's Cormorants, Neotropic Cormorants). It can also occur through nest failure of species nesting in close proximity to DCCOs caused by activity (e.g., human intrusion, egg-oiling, shooting) associated with DCCO lethal control. The USFWS asserts that it adequately addresses this issue by requiring states, tribes, and others conducting lethal control activities to report incidental take and then using those data to make additional recommendations or modifications.[52] However, this approach is not sufficient to meet the requirements of the MBTA. The MBTA requires that a person killing a protected migratory species be in the possession of a permit issued by the USFWS. Otherwise that killing would represent a violation of the MBTA. The USFWS cannot simply ignore this risk and rely upon after-the-fact reporting. The approach taken in this DEIS stands in stark contrast to the FEIS issued for DCCO killing in the Columbia River estuary in which the USFWS issued a limited number of permits to kill non-target species that were likely to be unintentionally taken during the DCCO lethal control program.

17. The Section regarding Existence and Aesthetic Values is Inadequate

The DEIS devotes a total of two paragraphs to impacts of the preferred Action Alternative to existence and aesthetic values. USFWS fails to provide any meaningful analysis what-so-ever regarding the existence or aesthetic value that the public places on DCCOs. It simply does an end run around these issues by saying that there are no recent studies on the topic and opinions would vary from person to person. This analysis is stunningly vapid. The fact that opinions will vary from person to person in no way negates the responsibility of the USFWS to conduct a meaningful analysis of these issues. Further, the Service fails to draw on data on this topic that are currently in its possession. For example, the Service provides no meaningful analysis of the comments it received in the NEPA scoping process beyond simply stating the number of comments received. The Service should analyze the information from the scoping process to help inform the DEIS about how the public feels about lethal control of DCCOs and specific issues of concern. It is unclear from the DEIS whether the USFWS did any analysis at all on the scoping comments other than to count the number of comments received. There is not a single place in the DEIS where the USFWS references a decision/ recommendation that was informed or influenced by the scoping comments.

The Service could further inform these issues by referencing comments received in other NEPA processes, such as the FEIS for lethal control of DCCO in the Columbia River estuary in which the Service received tens of thousands of comments, the vast majority opposed to lethal control.

Finally, we would urge the USFWS to utilize the type of ethical analysis supplied by William Lynn for the EIS related to lethal control of Barred Owls in the Pacific Northwest. This process provided valuable information to the USFWS and the public about the ethical implications and public values related to this

[51] DEIS at 63.
[52] DEIS at 64.

activity. While it did not result in agreement among all stakeholders, it did increase understanding and trust and also helped provide information to the USFWS pertaining to how these activities could be carried out in ways that better addressed public values and concerns.

18. USFWS Fails to Address Animal Welfare Issues in the DEIS

The DEIS fails to address issues related to animal welfare in the DEIS. The DEIS provide no information on strategies that will be used to minimize suffering of lethally controlled cormorants. Missing information includes:

- Training requirements for personnel performing lethal control activities
- Protocols for treatment of non-target animals harmed in the course of carrying out lethal control of cormorants.
- Strategies for preventing disruption of nesting colonies
- Strategies for avoiding orphaning of nestling and fledgling cormorants whose parent(s) are killed

It is unacceptable that USFWS would increase lethal control levels for DCCO to historically high levels, delegate much of its oversight authority to other agencies and entities, and fail entirely to address animal welfare issues associated with these actions.

19. USFWS Fails to Address Lethal Take Caused by Either Disruption of Colonies or Orphaning of Young Cormorants

The USFWS only addresses direct take of DCCO in the DEIS. However, the impacts of activities under each of the action alternatives could result in mortality levels that are significantly higher. This could occur either by orphaning of young by killing their parents during the nesting season or by disruption of colonies by lethal control activities during the nesting season. If an adult cormorant with an active nest is killed during the nesting season, only a single death will be reported, but the action may well result in the death of the entire brood from starvation. Of even greater significance is the risk to colonies should lethal control activities occur in or near the colony during the nesting season. This type of activity could result in responses ranging from temporary flushing to permanent colony abandonment. This creates multiple risks, including egg failure, predation of eggs or young, death from exposure, and starvation. This is far from a hypothetical concern—In 2016, within a few days of the initiation of lethal control activities at the world's largest DCCO colony at East Sand Island, 16,000 DCCOs abandoned active nests and did not return. Failure to account for potential deaths associate with orphaning and colony disruption not only presents a serious animal welfare issue, but also presents a very high probability that the actual impacts of lethal control activities will be far higher than what is actually reported.

20. USFWS Fails to Adequately Analyze the Economic Benefits Provided by Double-crested Cormorants

The USFWS focuses exclusively on the negative economic impacts of DCCOs in the DEIS. It fails entirely to consider the economic benefits of DCCOs. We would note specifically the role that DCCOs play in consuming invasive and predatory fish that may impact federally listed and commercially valuable fish species. The economic focus in the DEIS is entirely on the negative impacts that DCCOs have on listed species, commercially valuable species, and property. This represents a remarkably one-sided analysis. Any complete analysis must include both the potential benefits that DCCOs provide by consuming invasive or predatory fish as well as on their value for recreational birding, tourism, etc. The Service's entire analysis of the positive economic impacts of DCCOs is contained in a single line: "While we were not able to quantify the existence or aesthetic value of cormorants to various stakeholders, we recognize that although the direct economic benefits of cormorants may be limited when compared to

the economic impacts, they are not devoid of value."[53] This represents one of the most cursory and vacuous economic analyses that we have seen in a DEIS of this nature.

21. Streaked Horned Larks Effects Determination

We challenge Service's assertion that DCCO lethal control activities are unlikely to adversely affect federally listed threatened Streaked Horned Larks.[54] Streaked Horned Larks are ground nesting birds that nest in sparsely vegetated sites, including on Columbia River islands that could also serve as DCCO breeding colonies. Active lethal control activities at a DCCO colony located in close proximity to a Steaked Horn Lark nest could caause nest failure due to trampling or disturbance. We would urge USFWS to require nest surveys for Streaked Horned Larks if lethal cormorant control is going to occur in proximity to suitable Streaked Horned Lark nesting habitat, within geographies that Streaked Horned Larks are believed to be breeding.

22. Table E-1 Does not provide a source for the population estimates for the Western Population of Double-crested Cormorants

The Table identifies footnote F as the source of the population data. However, there is no footnote F. The footnotes skip from E to G.

Quotes Undermine the Integrity of this Process.

Before we conclude, we would like to note our concern about the quotes that accompanied the January 21, 2020 Interior Department news release that accompanied the advance notice of public rulemaking.[55] The news release included multiple supportive quotes from members of the Senate and House of Representatives, American Farm Bureau Federation, and a Director of the U.S. Fish and Wildlife Service. This type of cheerleading strikes us as highly inappropriate for a document of this nature and raises the possibility that this process is being driven by backdoor politics rather than science and public input. If this is the case, it may violate the Administrative Procedures Act (60 Stat. 237).

The US Fish and Wildlife Service Should Utilize the Current NEPA Regulations that are in Place

We urge the US Fish and Wildlife Service to review this EIS under the NEPA regulations that were in place when the process was initiated. On January 9, 2020, the Council on Environmental Quality (CEQ) announced a proposed rulemaking to amend NEPA regulations. The final rule was not signed until July 15, 2020, five days prior to the end of the DEIS comment period for the NEPA process that is the subject of these comments.[56] Entities engaging in this process have done so working under the NEPA regulations that were in place prior to July 15, 2020 and as a matter of fair and reasonable public process, this EIS should be held to those standards.

[53] DEIS at 71.
[54] DEIS at 149.
[55] https://www.doi.gov/pressreleases/interiors-fish-and-wildlife-service-solicits-public-input-cormorant-management
[56] https://www.whitehouse.gov/ceq/nepa-modernization/

Conclusion

Linda Wires has written: The cormorant has recovered only to return to a world where most resources have long been spoken for."[57] Cormorants have faced centuries of persecution. They have survived major declines causes by overhunting and more recently contaminants. They continue to face extreme antipathy and persecution both in the form of legally permitted hazing, harassment, and lethal control as well as illegal take and disruption of nesting colonies. It is the mission of the U.S. Fish and Wildlife Service's Migratory Bird Program to provide leadership in migratory bird conservation and management through effective partnerships, applied science, and innovative strategies." [58] This DEIS utterly fails to meet that mission. The USFWS must be a voice for the protection of North American wildlife, even those species that are unpopular with some publics. It must serve as a bulwark against special interests that would cause unnecessary harm or potentially jeopardize the existence of a species. In the pages of this DEIS, USFWS twists itself into a parody of a wildlife conservation agency.

The priority of this DEIS is placed entirely on reducing both real and perceived conflicts and increasing regulatory efficiency for a small group of stakeholders, regardless of whether there is scientific data to support those concerns. The Service sets outrageously high lethal control thresholds that dwarf already highly controversial (and largely illegal) lethal control programs that were established over the past 15 years. The Service proposes to expand the qualifying reasons to issue lethal control permits to include the cormorant's basic biological need to consume fish, a basis which could be used to justify killing cormorants anywhere at any time. The Service proposes abdicating its oversight authority to entities with well-documented antipathy, limited resources, and less expertise than the USFWS, and then fails to substantively include the most basic elements of accountability, such as a monitoring plan, an adaptive management plan, oversight funding mechanisms, and timely review of the program's efficacy and impacts. Finally, the Service abandons any pretense of concern about the welfare of these birds by proposing alternatives that deemphasize non-lethal management strategies and that present high risk of causing starvation of juvenile cormorants, nest colony failure, and inhumane death. As proposed, we believe that each of the action alternatives violates the requirements of NEPA, presents a high risk of causing unnecessary cormorant suffering and death, and which create a high risk of plunging some cormorant populations below sustainable levels.

We strongly urge the Service to adopt Alternative E (No Action Alternative) and retain direct responsibility for issuing individual permits to kill cormorants, only as a last resort, on a case by case basis. The USFWS has direct responsibility under the MBTA to ensure that DCCO populations remain healthy. None of the action alternatives presented in the DEIS are consistent with this objective. Under the Action Alternatives, DCCO populations are vulnerable to becoming unsustainable. Wanton slaughter during the 1800s caused North American DCCO populations to plummet. Use of the pesticide DDT also caused significant population declines in the mid-1900s. In the Western United States, DCCO populations have never rebounded to anything close to historical levels and remain vulnerable to a variety of threats. Irresponsible actions by the USFWS over the past two decades have resulted in the unnecessary and wanton slaughter of tens of thousands of DCCO and the wasting of millions of taxpayer dollars without appreciable benefits. The USFWS should select Alternative E and focus on proactive, humane, and ecologically responsible management of DCCO populations in the United States.

[57] Wires, .r. (2014) The Double-crested Cormorant: Plight of a Feathered Pariah. Yale University Press, New Haven and London.
[58] DEIS at 5.

Thank you for your consideration of these comments.

Respectfully,

Bob Sallinger
Conservation Director
Audubon Society of Portland

Harvey Shubothe
President
Cape Arago Audubon Society

Paul Engelmeyer
Manager
Ten Mile Creek Sanctuary (Yachats)

Ann Vileisis
President
Kalmiopsis Audubon Society

David Harrison
Conservation Chair
Salem Audubon Society

Debra Schlenoff
Conservation Chair
Lane County Audubon

Diana Wales
President
Umpqua Valley Audubon Society

Tom Lawler
President
East Cascades Audubon Society

Steve Griffiths
Conservation Chair
Audubon Society of Lincoln City

Darrel Samuels
President
Klamath Basin Audubon Society

Dave Mellinger
President
Corvallis Audubon Society

Carol Mockridge
President
Rogue Valley Audubon Society

Danielle Mosure
Wildlife Program Manager
Oregon Wild

Kelly Peterson
Oregon State Director
Humane Society of the United States

Brian Posewitz
Director
Humane Voters Oregon

Noah Greenwald
Endangered Species Director
Center for Biological Diversity

Samantha Bruegger
Wildlife Coexistence Campaigner
WildEarth Guardians

Michael Harris
Wildlife Law Program
Friends of Animals