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The Endangered Species Act and Climate Change: Selected Legal Issues

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SUMMARY

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The Endangered Species Act and Climate Change: Selected Legal Issues

For more than a decade, federal agencies have grappled with how to address climate change effects when implementing the Endangered Species Act of 1973 (ESA). The ESA aims to protect threatened and endangered fish, wildlife, and plants from extinction. As set forth by Congress, one of the main purposes of the ESA is to "provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved."

The U.S. Fish and Wildlife Service (FWS) and the National Marine Fisheries Service (NMFS) (collectively, the Services) have acknowledged that the changing climate may threaten the survival of and habitat for some species. As noted by courts and legal scholars, the ESA does not expressly require the Services to consider the effect of climate change in their ESA decisions. However, the ESA and its implementing regulations (1) direct the Services to consider "natural or manmade factors affecting [a species'] continued existence" when determining whether a species should be protected under the ESA; and (2) require the Services to analyze cumulative effects on a species' survival when analyzing whether federal actions jeopardize a species protected under the Act. The courts and the Services have interpreted these provisions as requiring the Services to consider climate change effects in the ESA decisionmaking process. Various lawsuits have challenged the Services' interpretation of complex scientific data or models that predict short- and long-term effects from a changing global climate on specific species and their habitats.

Legal challenges have influenced how the Services implement the ESA when climate change affects species and their habitats. Lawsuits typically focus on two main issues: (1) when the Services should list, delist, or reclassify a species as threatened or endangered because of climate change effects; and (2) whether the Services can or should regulate activities that affect the climate to protect species and their habitat. Judicial review has helped to ensure that the Services consider projected climate change effects on species in their ESA decisions. However, the courts have not required the Services to curb activities that may contribute to climate change to protect threatened or endangered species.

Stakeholders disagree on whether the ESA should play a role in addressing climate change, with some arguing that the ESA is not equipped to mitigate climate change effects. Other stakeholders believe that the Services can and should wield the ESA to protect further species threatened by climate change by curbing activities contributing to climate change. From the Services' viewpoint, the best available scientific and commercial data have been insufficient to determine whether greenhouse gas emissions from a proposed activity cause detrimental effects on a species or its habitat. In light of the judicial deference afforded to the Services, the courts have not expanded the ESA as a tool to protect listed species by regulating activities that contribute to climate change.

This report analyzes the courts' role in shaping how the Services have factored climate change effects into ESA decisions and recent 2019 regulatory developments that aim to clarify how the Services consider and address climate change in their ESA decisions. In August 2019, the Services finalized revisions to the ESA implementing regulations, aiming to increase transparency and effectiveness of the ESA while easing regulatory burdens. Among those changes, the Services clarified their existing policies and practices for factoring climate change effects into their ESA decisions. As legislative proposals to revise the ESA continue to develop, legal battles over the how the Services interpret climate change effects in their ESA decisions will likely continue.

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For more than a decade, federal agencies have grappled with how to address climate change effects when implementing the Endangered Species Act of 1973 (ESA, or the Act). The ESA aims to protect threatened and endangered fish, wildlife, and plants from extinction.[1] As set forth by Congress, one of the main purposes of the ESA is to "provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved."[2] To conserve threatened and endangered species, the Act seeks to identify threatened or endangered species, facilitate recovery and conservation of these species, and minimize the effect of federal and private actions on these species and their habitats.[3] The Supreme Court has stated that "[t]he plain intent of Congress in enacting this statute was to reverse the trend toward species extinction, whatever the cost."[4]

To achieve that purpose, Congress declared that "all Federal departments and agencies shall seek to conserve endangered species and threatened species and shall utilize their authorities" to further the ESA purposes.[5] Under the ESA, two federal agencies—the U.S. Fish and Wildlife Service (FWS) within the Department of the Interior and the National Marine Fisheries Service (NMFS) within the Department of Commerce (collectively, the Services)—are primarily responsible for implementing the ESA.[6] According to the Services, over 1,500 species of plants and animals receive some type of protection under the ESA.[7] Since the early 21st century, some Members of Congress have urged the Services to factor in climate change effects when implementing the ESA.[8]

The Services, along with scholars and scientists, have acknowledged that the changing climate may threaten the survival of and habitat for some species.[9] As noted by courts and legal scholars,

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[1] P.L. 93-205, 87 Stat. 884. 16 U.S.C. §§1531-1544. For more information on the ESA, see CRS In Focus IF11241, *The Legal Framework of the Endangered Species Act (ESA)*, by Erin H. Ward; and CRS Report RL31654, *The Endangered Species Act: A Primer*, by Pervaze A. Sheikh.

[2] 16 U.S.C. § 1531(b).

[3] For a description of the legal framework of the ESA, see CRS In Focus IF11241, *The Legal Framework of the Endangered Species Act (ESA)*, by Erin H. Ward.

[4] Tennessee Valley Authority v. Hill, 437 U.S. 153, 184 (1978).

[5] 16 U.S.C. § 1531(c)(1).

[6] In general, FWS manages terrestrial, freshwater, and catadromous species, and NMFS manages marine species and anadromous fish. For detailed information on FWS's ESA program, see FWS website at http://www.fws.gov/endangered/. For detailed information on NMFS's ESA program, see NMFS website at http://www.nmfs.noaa.gov/pr/laws/esa/. NMFS, a part of the National Oceanic and Atmospheric Administration (NOAA), is also referred to as *NOAA Fisheries*.

[7] *Environmental Conservation Online System, Listed Animals*, FISH & WILDLIFE SERV., https://go.usa.gov/xVXNs (last visited Sept. 9, 2019); *Species Directory*, NOAA FISHERIES, https://www.fisheries.noaa.gov/species-directory/threatened-endangered (last visited Sept. 19, 2019).

[8] *See, e.g.*, H.R. Rep. No. 110-296, Pt. 1, at 35 (2007) (allocating funds to FWS endangered species programs to assist species adaptation to climate change). *See also* Dean Scott, *Appropriators Urge Interior to Deepen Review of How Global Warming is Affecting Species*, DAILY ENV'T REP. (BNA) (Apr. 27, 2007) (discussing congressional hearing urging climate change research to determine whether and how species are being affected).

[9] *See* Colo. River Cutthroat Trout v. Salazar, 898 F. Supp. 2d 191, 207 (D.D.C. 2012) ("As scientific assessments increasingly incorporate in-depth analyses of climate change effects, explicit consideration of climate change-related threats may become a necessary component of the status review."); NMFS, REVISED GUIDANCE FOR TREATMENT OF CLIMATE CHANGE IN NMFS ENDANGERED SPECIES ACT DECISIONS 1 (2016) ("[C]limate change has become a key lens through which resource management decisions must be evaluated and addressed."). *See also* David Owen, *Endangered Species Act, in* GLOBAL CLIMATE CHANGE AND U.S. LAW 188 (Michael B. Gerrard & Jody Freeman eds., 2d ed. 2014); James Ming Chen, *The Fragile Menagerie: Biodiversity Loss, Climate Change, and the Law*, 93 IND. L.J. 303, 304-310 (2018); Barry Kellman, *Climate Change in the Endangered Species Act: A Jurisprudential Enigma*, 46 ENVTL. L. REP. 10845, 10845 (2016).

the ESA does not expressly require the Services to consider the effect of climate change in their ESA decisions.[10] However, the ESA and its implementing regulations (1) direct the Services to consider "natural or manmade factors affecting [a species'] continued existence" when determining whether a species should be protected under the ESA; and (2) require the Services to analyze cumulative effects on a species' survival when analyzing whether federal actions jeopardize a species protected under the Act.[11] The courts and the Services have interpreted these provisions as requiring the Services to consider climate change effects into the ESA decisionmaking process.[12]

Various lawsuits have challenged the Services' interpretation of complex scientific data or models that predict short- and long-term effects from a changing global climate on specific species and their habitats.[13] These lawsuits typically focus on two main issues: (1) when the Services should list, delist, or reclassify a species as threatened or endangered because of climate change effects; and (2) whether the Services can or should regulate activities that affect the climate to protect the species. Judicial review has helped to ensure that the Services consider projected climate change effects on species in their ESA decisions, but the courts have not required the Services to curb activities that may contribute to climate change to protect threatened or endangered species.

This report analyzes the courts' role in shaping how the Services have factored climate change effects into ESA decisions and recent regulatory developments that seek to clarify how the Services consider and address climate change in their ESA decisions.

Judicial Review Under the ESA

In general, stakeholders challenge the Services' ESA actions or inactions under the Administrative Procedure Act (APA). The APA authorizes reviewing courts to "hold unlawful and set aside agency actions, findings, and conclusions found to be arbitrary, capricious, [or] an abuse of discretion."[14] Under the arbitrary and capricious standard, courts must determine whether the agency "examine[d] the relevant data and articulate[d] a satisfactory explanation for its action, including a 'rational connection between the facts found and the choice made,'" but the standard prohibits courts from "substitut[ing] its judgment for that of the agency."[15] Under this deferential standard, courts have generally deferred to the Services' decisions related to climate change.

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[10] *See* Colo. River Cutthroat Trout v. Salazar, 898 F. Supp. 2d 191, 206-07 (D.D.C. 2012) (noting "no statutory requirement" requiring the Services "to discuss climate change in [their] listing decisions"); All. for the Wild Rockies v. Lyder, 728 F. Supp. 2d 1126, 1140 (D. Mont. 2010) (upholding FWS's decision to not designate critical habitat for the Canada link based only on regional climate data). *See also* James Ming Chen, *The Fragile Menagerie: Biodiversity Loss, Climate Change, and the Law*, 93 IND. L.J. 303, 334 (2018).

[11] 16 U.S.C. § 1533(a)(1); 50 C.F.R. § 402.14(g); Pac. Coast Fed'n of Fishermen's Ass'ns v. Gutierrez, 606 F. Supp. 2d 1122, 1184 (E.D. Cal. 2008); Nat. Res. Def. Council v. Kempthorne, 506 F. Supp. 2 322, 374-76 (E.D. Cal. 2007). Courts had generally found that FWS met the requirement to consider cumulative threats from climate change when it provided "even a brief discussion" of such threats. Desert Survivors v. Dept. of the Interior, 321 F. Supp. 3d 1011, 1049 (N.D. Cal. 2018) (concluding that FWS "offered sufficient explanation of its consideration of cumulative threats" to the bi-state grouse by "identif[ying] the threats that may interact and provid[ing] some explanation of the implications of the interactions.").

[12] *See infra* "Listing Decisions Under the ESA."

[13] LAWRENCE R. LIEBESMAN & RAFE PETERSEN, ENDANGERED SPECIES DESKBOOK 104 (2010); John Kostyack & Dan Rohlf, *Conserving Endangered Species in an Era of Global Warming*, *in* ENDANGERED SPECIES: LAW POLICY AND PERSPECTIVE 375, 379 (Donald C. Baur et al. eds. 2010).

[14] 5 U.S.C. § 706(2)(A).

[15] Motor Vehicle Mfrs. Ass'n of U.S. v. State Farm Mut. Auto Ins. Co., 463 U.S. 29, 43 (1983) (quoting Burlington Truck Lines, Inc. v. United States 371 U.S. 156, 168 (1962)).

However, courts have not deferred to the Services when the court concludes that the record does not support the Services' decision or the Services failed to consider climate change adequately.[16]

The sections below offer selected examples, drawn from various court decisions, legal documents, and regulatory developments, to illustrate the range of issues that the Services and the courts have addressed related to the ESA and climate change. Each section of the report reviews the applicable legal framework and discusses the relevant regulatory revisions finalized by the Trump Administration in August 2019. This report does not aim to provide a comprehensive or representative preview of all the judicial decisions that have addressed this area.

Listing Decisions Under the ESA

Many legal challenges involving the ESA and climate change have centered on whether to list a species as endangered or threatened under the ESA. To trigger protections and prohibitions under the ESA, the Services must first list a species as threatened or endangered. Under ESA Section 4, the Services list a species as endangered or threatened based on assessments of the risk of their extinction.[17] The Act defines an "endangered species" as a species "in danger of extinction throughout all or a significant portion of its range."[18] A "threatened species" is a species "likely to become endangered within the foreseeable future in all or a significant portion of its range."[19] For listing decisions, the ESA requires the Services to determine whether the species "is a threatened or endangered species because of any of the following factors:

> (A) the present or threatened destruction, modification, or curtailment of its habitat or range;
>
> (B) overutilization for commercial, recreational, scientific, or educational purposes;
>
> (C) disease or predation;
>
> (D) the inadequacy of existing regulatory mechanisms; or
>
> (E) other natural or manmade factors affecting its continued existence."[20]

When listing a species, the Services must make their decision "solely on the basis of the best scientific and commercial data available . . . after conducting a review of the status of the species," taking into account any state's or foreign nation's actions to protect such species.[21]

Courts have consistently held that the Services must consider climate change as a factor in their listing decisions if it may affect the survival of the species.[22] However, stakeholders have disputed the extent to which climate change affects species and the science underpinning listing decisions. Some stakeholders have sought through petitions[23] and legal challenges to compel the

[16] Barry Kellman, *Climate Change in the Endangered Species Act: A Jurisprudential Enigma*, 46 ENTVL. L. REP. 10845, 10846 (2016).

[17] 16 U.S.C. §1533(a).

[18] *Id.* § 1532(6).

[19] *Id.* § 1532(20).

[20] *Id.* § 1533(a)(1).

[21] *Id.* § 1533(b)(1)(A).

[22] *See, e.g.*, Greater Yellowstone Coalition v. Servheen, 665 F.3d 1015 (9th Cir. 2011).

[23] Interested parties may petition the Services to list a species as endangered or threatened under the ESA. 16 U.S.C. § 1533(b)(2).

Services to list species whose survival has been or may be threatened by climate change effects.[24] Other stakeholders have challenged the listing of species or petitioned the Service to delist a species, questioning whether model-based climate predictions constitute the "best scientific and commercial data available" on which to base ESA listing decisions.[25]

Scientific uncertainty and undefined terms in the ESA have opened the door to litigation challenging the Services' interpretation of ambiguous terms and their assessment of the climate science that supports their listing decisions. Courts often uphold the Services' interpretation of ambiguous terms because judicial review of agency decisions is narrow and highly deferential; the court will not set aside an ESA listing decision so long as it is rational and reasonably based on supporting evidence.[26] However, courts have faulted the Services for inadequately considering climate change effects or relying on the scientific uncertainty of climate modeling to deny a petition to list a species.[27] The two sections below discuss various court decisions that have reviewed how the Services (1) interpret the undefined "foreseeable future" in their listing decisions, and (2) address the scientific uncertainty of climate change effects.

Foreseeability of Climate Change Effects in Listing Decisions

Legal challenges to Services' decisions to list or not to list a species as threatened highlight the difficulty in predicting whether a species is likely to be endangered "within the foreseeable future" because of climate change effects.[28] Neither the ESA nor the implementing regulations define the term *foreseeable future*. Under their interpretation of the term, the Services determine foreseeability on a case-by-case basis for listing decisions, and the foreseeable future time frame can vary considerably based on the species and its habitat.[29] For species affected by climate change, the Services' decisions on foreseeability of a species' survival often depend on their assessment of predictive modeling of climate threats to a species and its habitat. How a Service defines a species' foreseeable future could affect its ESA listing decision. For example, a species is less likely to be listed for protection under the ESA if the Services adopt a shorter time frame for the foreseeable future, thereby limiting their consideration of longer-term projections of climate change effects on a species and its habitat.[30]

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[24] *See, e.g.*, Animal Welfare Inst. & Def. of Wildlife, *Petition to List the Northwest Atlantic Distinct Population Segment (DPS) of the Thorny Skate (*Amblyraja radiata*) as Endangered or Threatened or, Alternatively, to List the United States DPS of the Thorny Skate as Endangered or Threatened under the U.S. Endangered Species Act* (May 28, 2015), https://awionline.org/sites/default/files/uploads/documents/AWI-ML-ThornySkate-ESA-Petition-submitted.pdf; Ctr. For Biological Diversity, *Petition to List the Pacific Walrus (*Odobenus rosmarus divergens*) as Threatened or Endangered under the Endangered Species Act* (Feb. 7, 2008), https://www.biologicaldiversity.org/species/mammals/Pacific_walrus/pdfs/CBD-Pacific-walrus-petition.pdf.

[25] *See infra* "Foreseeability of Climate Change Effects in Listing Decisions."

[26] *See* Alaska Oil & Gas Ass'n v. Jewell, 815 F.3d 544, 554 (9th Cir. 2016).

[27] *See infra* "Scientific Uncertainty in Listing Decisions."

[28] 16 U.S.C. § 1532(20).

[29] Ctr. for Biological Diversity v. Lubchenco, 758 F. Supp. 2d 945, 967 (N.D. Cal. 2010) ("Plaintiffs concede that the length of time that constitutes the 'foreseeable future' for listing purposes may vary depending on the species and the threats it faces."). *See also* Memorandum (M-37021) from the David L. Bernhardt, Solicitor, Dep't of the Interior, to Acting Director, FWS (Jan. 16, 2009) (providing guidance to FWS on addressing the concept of the foreseeable future in determining whether a species is threatened under the ESA), https://www.fws.gov/endangered/esa-library/pdf/M-37021%20Foreseeable%20future.pdf.

[30] *See* Jake Li & Angus McLean., *Why for the Forseeable Future Matters*, ENVTL. POLICY & INNOVATION CENTER, http://policyinnovation.org/foreseeable-future (last visited September 19, 2019) (analyzing how agencies have interpreted "foreseeable future" in ESA listing decisions).

The legal challenges to FWS's listing of the polar bear (*Ursus maritimus*) illustrate how courts have applied this narrow and deferential standard of review and interpreted the ESA standards for the best available data in the climate change context. In 2013, in *Safari Club International v. Salazar (In re Polar Bear Endangered Species Act Listing and Section 4(d) Rule Litigation)* (hereinafter *In re Polar Bear*), the U.S. Court of Appeals for the District of Columbia Circuit (D.C. Circuit) upheld FWS's listing of polar bears as a threatened species under the ESA based in part on projected climate change effects to the species and its habitat.[31] FWS based its decision on three main conclusions: (1) that the polar bear is dependent on sea ice for its survival; (2) that sea ice is declining; and (3) that climate change will likely continue to reduce the extent and quality of arctic sea ice gravely enough to endanger the polar bear population.[32]

The D.C. Circuit held that the challenges to FWS's scientific assessment and conclusions "'amount to nothing more than competing views about policy and science,' on which we defer to the agency."[33] The court also rejected arguments that climate science was too uncertain to support listing the polar bear as a species that is likely to become endangered in the "foreseeable future," defined by FWS in this case as 45 years in the future.[34] The court concluded that FWS's reliance on climate projections was "justifiable[,] clearly articulated[,] . . . sufficient to support their definition of foreseeability."[35] The Supreme Court declined to review the case.[36]

In 2016, the U.S. Court of Appeals for the Ninth Circuit (Ninth Circuit) similarly deferred to the NMFS's foreseeable future analysis in upholding the listing of two populations of Arctic bearded seals (*Erignathus barbatus nauticus*) in *Alaska Oil & Gas Association v. Pritzker*.[37] NMFS listed the seals as threatened in 2012 based on climate change models that predicted that sea ice the seals depend on for birthing and mating would mostly disappear by 2095.[38] In rejecting the plaintiffs' claim that the models used in the listing decision could not reliably predict climate change effects on the seals beyond 2050,[39] the Ninth Circuit concluded that NMFS may base its listing decision on such models and long-term projections because the record included a reasonable explanation for its decision.[40] The court explained that the

> ESA does not require NMFS to base its decision on ironclad evidence when it determines that a species is likely to become endangered in the foreseeable future; it simply requires

[31] 709 F.3d 1 (D.C. Cir. 2013), *cert. denied*, 571 U.S. 887 (2013). Note that the lower court had upheld FWS's listing against an array of consolidated legal challenges that had argued that the polar bear should have been listed as "endangered" rather than "threatened," as well as from industry groups and other plaintiffs that had argued that the polar bear listing was unwarranted. *See In re Polar Bear Endangered Species Act Listing and §4(d) Rule Litigation)*, 838 F. Supp. 2d 214, 218 (D.D.C. 2011). The lower court had ordered FWS to conduct additional environmental review of the ESA Section 4(d) rule for polar bears, *Id.* at 238, which FWS did in 2013. *See* 78 Fed. Reg. 11,766 (Feb. 20, 2013).

[32] *Id.* at 8.

[33] *Id.* at 9 (quoting *In re Polar Bear Endangered Species Act Listing and §4(d) Rule Litigation*, 794 F. Supp. 2d 65, 69 (D.D.C. 2011)).

[34] *Id.* at 15, quoting 16 U.S.C. §1532(20).

[35] *Id.* at 16.

[36] *Safari Club Int'l v. Jewell*, 571 U.S. 887 (2013).

[37] Alaska Oil & Gas Ass'n v. Pritzker, 840 F.3d 671 (9th Cir. 2016), *cert. denied*, 138 S. Ct. 924 (2018).

[38] *Id.* at 681-82.

[39] *Id.* at 681.

[40] *Id.*

> the agency to consider the best and most reliable scientific and commercial data and to identify the limits of that data when making a listing determination.[41]

Soon after the bearded seal decision, the Ninth Circuit reversed an Alaska federal district court's decision to vacate NMFS's decision to list the Arctic subspecies of the ringed seal (*Phoca hispida hispida*) as threatened under the ESA.[42] Bound by the precedent set in *Pritzker*, the Ninth Circuit concluded that the district court erred when it required more "definitive quantitative data about the Arctic ringed seal population and an extinction threshold" to list the species as threatened under the ESA.[43] The court determined that NMFS's reliance on climate change models that project until 2100 was not arbitrary or capricious because NMFS "provided a reasonable and scientifically supported methodology for addressing volatility in its long-term climate projections, and it represented fairly the shortcomings of those projections—that is all the ESA requires."[44]

Courts have also deferred to NMFS's decisions not to list species when it reasonably demonstrated that long-term predictive climate models were unreliable to support a listing decision. For example, a federal district court in California upheld NMFS's decision not to list the ribbon seal (*Histriophoca fasciata*) as threatened or endangered despite a "likely" population decline related to sea ice loss and ocean acidification.[45] The court held that NMFS reasonably relied on a 40-year time horizon, from 2010 to 2050, to project negative effects from climate change on the sea ice habitat because it determined the models beyond 2050 were unreliable.[46] The court deferred to NMFS's expertise in upholding NMFS's determination that, based on this time frame, the ribbon seal was not likely to become endangered or in danger of extinction in the foreseeable future because the seal is resilient and adaptable to climate change effects on its habitat.[47] The court concluded that NMFS did not err when it determined that climate models after 2050 were "unreliable" and "too divergent" to use in assessing future threats to the ribbon seal.[48] NMFS determined that the climate models were "too heavily dependent" on estimated greenhouse gas (GHG) emissions from different types of future regulatory controls.[49]

These foreseeability cases highlight the courts' willingness to defer to the Services' interpretation of climate modeling data and the foreseeability of climate change effects if the record for the listing decision includes a reasonable explanation for their decision that acknowledges limits or uncertainty in the data. As such, the Services continue to evaluate the foreseeability on a case-by-case basis.

Defining "Foreseeable Future" in ESA Regulations

In August 2019, the Services finalized revisions to the ESA regulations to define the "foreseeable future" as extending "only so far into the future as the Services can reasonably determine that both the future threats and the species' responses to those threats are likely."[50] Prior to this final

[41] *Id.*

[42] Alaska Oil & Gas Ass'n v. Ross, 722 F. App'x 666, 668 (9th Cir. 2018).

[43] *Id.* at 668.

[44] *Id.* at 669, quoting *Pritzker*, 840 F.3d at 680 (internal quotations omitted).

[45] Ctr. for Biological Diversity v. Lubchenco, 758 F. Supp. 2d 945, 967 (N.D. Cal. 2010).

[46] *Id.* at 963-67.

[47] *Id.* at 952-53.

[48] *Id.* at 963-65.

[49] *Id.* at 965.

[50] Endangered and Threatened Wildlife and Plants; Regulations for Listing Species and Designating Critical Habitat, Final Rule, 84 Fed. Reg. 45,020, 45,052 (Aug. 27, 2019).

rule, neither the ESA nor the implementing regulations defined the term *foreseeable future*. In the final rule, the Services emphasized that it would continue to evaluate the range of uncertainty and probabilities associated with the best available science and projected data on climate change effects to individual species and their habitat.[51]

It is unclear whether these changes will (1) affect how the Services evaluate long-term projections of climate change effects on species, or (2) promote greater uniformity and consistency within and between FWS and NMFS in their listing evaluations. Some stakeholders noted that the final rule merely codified the Services' existing practice in determining the foreseeable future for species.[52] Other stakeholders expressed concerns that this definition of *foreseeable future* would limit consideration of long-term projected threats from climate change.[53] In their lawsuit challenging the final rule, plaintiffs claim that demanding that both threats and responses to threats be "likely" in the foreseeable future imposes an "increased certainty requirement" that will deny protection under the ESA for species from the future effects of climate change.[54]

Scientific Uncertainty in Listing Decisions

The legal challenges to the Services' foreseeable future determinations highlight how scientific uncertainty plays a large role in evaluating climate change effects. Similar to the foreseeability cases, courts have faulted the Services for claiming scientific uncertainty without adequate explanation when declining to list a species. This section discusses some examples where stakeholders have challenged FWS's approach to scientific uncertainty in its decisions to not list a species or delist a species under the ESA.

To delist a species under the ESA, the Services must determine that none of the five factors considered in listing the species (i.e., destruction or modification of its habitat or range; overutilization for commercial, recreational, scientific, or educational purposes; disease or predation; inadequate existing regulatory protections; and other factors affecting its continued existence) threatens or endangers the species.[55] Delisting determinations must be made "solely on the basis of the best available scientific and commercial information regarding a species' status, without reference to possible economic or other impacts of such determination."[56]

Similar to judicial review of listing decisions discussed above, courts have generally deferred to FWS's decisions regarding scientific uncertainty of climate data unless FWS fails to justify why

[51] Endangered and Threatened Wildlife and Plants; Regulations for Listing Species and Designating Critical Habitat, Final Rule, 84 Fed. Reg. 45,020, 45,031-32 (Aug. 27, 2019). The final rule reiterated that the Services would not define foreseeable future in terms of a specific time period and will continue to identify the foreseeable future on a "case-by-case basis, using the best available data and taking into account considerations such as the species' life-history characteristics, threat-projection timeframes, and environmental variability." *Id.* at 45,020.

[52] Rebecca Barho & Brooke Wahlberg, *Expert Analysis ESA Rule Changes Less Drastic Than Critics Claim,* LAW360 (Aug. 29, 2019), https://www.law360.com/transportation/articles/1192657/esa-rule-changes-less-drastic-than-critics-claim; Jake Li, *Last Week's Endangered Species Regulations: What Really Happened?* ENVTL. POLICY & INNOVATION CENTER (Aug. 20, 2019), http://policyinnovation.org/the-real-story-on-the-new-endangered-species-act-rules/.

[53] *See, e.g.*, Rebecca Beitsch, *Democrats, Environmentalists Blast Trump Rollback of Endangered Species Protections*, THE HILL (Aug. 12, 2019), https://thehill.com/policy/energy-environment/457156-dems-environmentalists-blast-trump-rollback-of-endangered-species; Adam Aton, *Trump Admin Rolls Out Rule Changes to Limit Law's Reach*, GREENWIRE (Aug. 12, 2019), https://www.eenews.net/stories/1060931003

[54] Complaint for Declaratory and Injunctive Relief, Center for Biological Diversity v. Bernhardt, No. 3:19-cv-05206 (N.D. Cal. Aug. 21, 2019).

[55] 50 C.F.R. § 424.11(d).

[56] *Id.* § 424.11(b).

such uncertainty supports its listing decision. For example, in 2011, the Ninth Circuit in *Greater Yellowstone Coalition Inc. v. Servheen* vacated and remanded FWS's delisting of the Yellowstone grizzly bear (*Ursus arctos horribilis*) as a threatened species, partly because FWS failed to justify why declines in whitebark pine—a primary source of food for grizzlies—due to climate change were not likely to threaten the Yellowstone grizzly bear population.[57] While acknowledging that courts generally defer to the Services' expertise, the Ninth Circuit refused to defer to FWS's "arbitrary" and unsupported claims of scientific uncertainty regarding the effect that declining food supplies resulting from climate change may have on grizzly bears.[58] Relying on evidence that climate change reduced available whitebark pine seeds, increased grizzly bear mortality, and decreased grizzly bear reproduction, the court concluded that overall declines in the grizzly bear's food source from climate change effects in the Yellowstone region would logically have a "negative effect on its grizzly bear population."[59]

In 2018, the Ninth Circuit similarly rejected FWS's decision not to list the Upper Missouri River Valley distinct population segment of Arctic grayling (*Thymallus arcticus*) as endangered or threatened.[60] In *Center for Biological Diversity v. Zinke*, the court held that FWS acted arbitrarily and capriciously when it failed to explain why the uncertainty of climate change effects on the Arctic grayling supported not listing it.[61] The court faulted FWS for (1) refusing to make any projections with respect to the synergistic effects of climate change "simply because of uncertainty," and (2) disregarding the additive effects of climate change in considering the effects of low stream flows and high water temperatures on the species.[62]

Other courts have similarly faulted FWS for requiring a greater level of scientific certainty or evidence than the ESA requires with respect to climate change effects on a species in its listing determination. In *Defenders of Wildlife v. Jewell*, a federal district court in Montana held that FWS's 2014 decision to withdraw the proposed listing of the North American wolverine (*Gulo*

[57] Greater Yellowstone Coal., Inc. v. Servheen, 665 F.3d 1015, 1026 (9th Cir. 2011). In 1975, FWS listed the Yellowstone grizzly bear as threatened under the ESA. Amendment Listing the Grizzly Bear of the 48 Coterminous States as a Threatened Species, 40 Fed. Reg. 31,734 (July 28, 1975). After implementing a multi-agency recovery plan and researching the recovery of grizzly bears, FWS delisted the Yellowstone distinct population segment of grizzly bears from the ESA threatened species list. Endangered and Threatened Wildlife and Plants; Final Rule Designating the Greater Yellowstone Area Population of Grizzly Bears as a Distinct Population Segment; Removing the Yellowstone Distinct Population Segment of Grizzly Bears From the Federal List of Endangered and Threatened Wildlife; 90-Day Finding on a Petition To List as Endangered the Yellowstone Distinct Population Segment of Grizzly Bears, 72 Fed. Reg. 14,866 (Mar. 29, 2007).

[58] *Greater Yellowstone Coal., Inc.*, 665 F.3d at 1028.

[59] *Id.* at 1026. On remand, FWS again delisted the grizzly bear population from the threatened species list in 2017. Removing the Greater Yellowstone Ecosystem Population of Grizzly Bears from the Federal List of Endangered & Threatened Wildlife, Final Rule, 82 Fed Reg. 30,502, 30,536-540 (June 30, 2017). The consideration of climate change played a lesser role in the district court's decision to vacate FWS's 2017 attempt to delist the Yellowstone grizzly bears from the threatened species list. *See* Crow Indian Tribe v. United States, 343 F. Supp. 3d 999, 1010-15 (D. Mont. 2018) (concluding that FWS failed to consider how reduced protections of the Yellowstone grizzly would affect other grizzlies outside the Greater Yellowstone Ecosystem). In agreeing with the plaintiff's claim that FWS failed to analyze the Yellowstone grizzlies' genetic health properly, the court noted that studies expressed concerns about the long-term viability of isolated grizzly populations and recommended cross-breeding between ecosystems "particularly given the unpredictability of future climate and habitat changes." *Id.* at 1020.

[60] Ctr. for Biological Diversity v. Zinke, 900 F.3d 1053, 1073 (9th Cir. 2018) ("By failing to explain why the uncertainty of climate change favors not listing the arctic grayling when the 2014 Finding acknowledges the warming of water temperatures and decreasing water flow because of global warming, FWS acted in an arbitrary and capricious manner.")

[61] *Id.* at 1072.

[62] *Id.* The Ninth Circuit remanded the determination to FWS for reassessment of its findings. *Id.* at 1073.

gulo luscus) as threatened was arbitrary and capricious.[63] In reversing its position on the proposed listing, FWS attempted to discredit certain scientific studies on climate change effects that it had relied on previously to propose listing the wolverine as a threatened species.[64] FWS claimed that FWS needed greater certainty and refinement in the climate change data before listing the wolverine.[65] The court concluded that FWS "cannot demand a greater level of scientific certainty than has been achieved in the field to date—the 'best scientific data available' . . . standard does not require that the [FWS] act only when it can justify its decision with absolute confidence, and 'the ESA accepts agency decisions in the face of uncertainty.'"[66] After the court decision, in 2016, FWS reopened the public comment period on its previous proposal to list the wolverine as threatened under the ESA.[67] FWS has not made a final listing determination after closing the comment period.

Relatedly, courts have faulted FWS for requiring more evidence of climate change effects to delist a species than what is required under the ESA. In 2019, a federal district court in Texas held that FWS had acted arbitrarily and capriciously when it denied a petition to delist the Bone Cave harvestman spider (*Texella reyesi*) as an endangered species.[68] In *American Stewards of Liberty v. Department of the Interior*, the court concluded that FWS did not deny the petition based on the best available data but instead based its denial on the absence of "admittedly unavailable" evidence of climate change effects on the species and its habitat.[69] The court did not defer to FWS's conclusion that delisting of the spider was not warranted because the petition failed, in part, to include a "trend analysis to indicate that this species can withstand the threats associated with development or climate change over the long term."[70] In its decision denying the petition to delist, FWS claimed that the petitioners did not present enough data to determine if the spider's population will continue to decline from such threats.[71] The court held that FWS "committed clear error" by requiring the petition to present "conclusive evidence about the harvestman's population trends—more evidence than the Service admits is available or attainable."[72] The court concluded that the petition met the threshold for a finding that delisting may be warranted and remanded to FWS for further consideration.[73] To date, FWS has not issued a new finding regarding the delisting petition.

Although it is not possible to have complete certainty of future climate change effects, these court decisions illustrate that the Services cannot rely solely on scientific uncertainty to make listing or delisting decisions without adequate justification. In the 2019 revised ESA regulations, the Services noted that "the requirement to use the 'best available' data means that we cannot insist that information must be free from all uncertainty, and further agree that the Act's protections

[63] Defs. of Wildlife v. Jewell, 176 F.Supp.3d 975, 1011 (D. Montana 2016). According to FWS, warming temperatures and declines in snow levels predicted by climate models are expected to affect the North American wolverine, which relies on deep snow to den and reproduce, over the coming decades. *Id.* at 978-80.

[64] *Id.* at 1002-03.

[65] *Id.*

[66] *Id.* at 1003.

[67] Endangered and Threatened Wildlife and Plants; Proposed Rule for the North American Wolverine; Proposed rule; reopening of comment period, 81 Fed. Reg. 71,670 (Oct. 16, 2016).

[68] Am. Stewards of Liberty v. Dept. of the Interior, 370 F. Supp. 3d 711, 728-730 (W.D. Tex. 2019).

[69] *Id.* at 727.

[70] *Id.*

[71] *Id.*

[72] *Id.*

[73] *Id.* at 735.

should not be withheld until a species' status has declined to the point that the future risk of extinction is certain."[74]

Designating Critical Habitat

The Services have also considered climate change effects in designating critical habitat. When listing a species as threatened or endangered, the ESA requires the Services to "designate any habitat of such species which is then considered to be critical habitat."[75] As a threshold matter, as made clear by the Supreme Court's 2018 decision in *Weyerhauser Co. v. FWS*, an area must be "habitat" for a species for the Services to consider whether it is "critical habitat."[76] Under the ESA, the Services may designate two types of habitat as critical habitat: (1) specific areas within the geographical area occupied by the species, which contain the "physical or biological features essential to the conservation of the species" and may require special management protections (occupied habitat); and (2) areas outside the geographical areas occupied by the species if the Secretary determines that such unoccupied areas are "essential for the conservation of the species" (unoccupied habitat).[77] Once an area is designated as critical habitat, federal agencies may not (unless exempted) authorize, fund, or carry out actions that are likely to "result in the destruction or adverse modification" of critical habitat.[78]

The Services face unique challenges when designating critical habitat based on modeled habitat shifts for species affected by climate change.[79] The legal challenges to FWS's designation of the polar bear's critical habitat show how a court deferred to the FWS's interpretation of climate change data and models to determine whether unoccupied areas are "essential for the conservation of the species."

In a 2016 decision, *Alaska Oil & Gas Association v. Jewell*, the Ninth Circuit upheld FWS's designation of 187,000 square miles as critical habitat for the polar bear.[80] FWS based its critical habitat designation in part on long-term projections of habitat destruction from climate change.[81] FWS designated three areas on Alaska's coast and in its waters that contain elements essential to the polar bear: a sea ice habitat, a terrestrial denning habitat, and a barrier island habitat.[82] For two of the designated areas, the district court concluded that FWS failed to provide evidence that

[74] Endangered and Threatened Wildlife and Plants; Regulations for Listing Species and Designating Critical Habitat, Final Rule, 84 Fed. Reg. 45,020, 45,033 (Aug. 27, 2019).

[75] 16 U.S.C. §1533(a)(3)(A)(i).

[76] Weyerhaeuser Co. v. FWS, 139 S. Ct. 361, 368 (2018). While acknowledging that the ESA does not provide a "baseline definition of habitat," the Supreme Court left the task to the lower court to interpret the term "habitat." *Id.* at 369.

[77] 16 U.S.C. §1532(5)(A)(i). The ESA defines conservation as the "use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this chapter are no longer necessary." *Id.* § 1532(3).

[78] *Id.* § 1536(a)(2).

[79] *See* David Owen, *Endangered Species Act*, *in* GLOBAL CLIMATE CHANGE AND U.S. LAW 190-91 (Michael B. Gerrard & Jody Freeman eds., 2d ed. 2014) (discussing the scope of habitat designations and the difficulty in predicting habitat shifts); LAWRENCE R. LIEBESMAN & RAFE PETERSEN, ENDANGERED SPECIES DESKBOOK 106 (2010) (explaining the use of predictive modeling to identify habitat shifts).

[80] Alaska Oil & Gas Ass'n v. Jewell, 815 F.3d 544, 558-59 (9th Cir. 2016).

[81] *Id.* at 558-59.

[82] *Id.* at 555.

the two areas included all of the elements required for the survival of the polar bear.[83] The district court asked FWS to establish that polar bears currently use those two areas as habitat.[84]

The Ninth Circuit disagreed with the lower court's narrow interpretation of the ESA critical habitat requirements. The court rejected the lower court's finding that the ESA required FWS to limit the critical habitat designation to specific areas that are currently used by polar bears, explaining that "[n]o such limitation to existing use appears in the ESA, and such a narrow construction of critical habitat runs directly counter to the Act's conservation purposes. The Act is concerned with protecting the future of the species, not merely the preservation of existing bears. And it requires use of the best available technology, not perfection."[85] The court concluded that FWS properly relied on climate science and sea ice data in designating habitat that has the elements required to sustain and preserve the polar bear population.[86]

Similar to cases regarding foreseeability and scientific uncertainty, the court appeared to defer to FWS's reasoned consideration of climate change effects based on evidence in the record.

Revised ESA Critical Habitat Regulations

The 2019 final rule clarified when the Secretary may designate unoccupied areas as critical habitat. Under the ESA, unoccupied areas must be essential to the conservation of the species to be critical habitat.[87] Under the revised regulations, to determine if an unoccupied area is essential, the Services must find that the occupied habitat of the species at the time of listing is inadequate to ensure the conservation of the species.[88] The Services must also determine that there is a "reasonable certainty" that the area will (1) contribute to the conservation of the species, and (2) contains one or more of those physical or biological features essential to the conservation of the species.[89] The final rule explains that this revision "better reflects the need for high confidence that an area designated as unoccupied critical habitat will actually contribute to the conservation of the species."[90]

How the revised regulations will affect the designation of unoccupied critical habitat will likely depend on the threshold the Services set for "reasonable certainty" that the unoccupied habitat will contribute to the conservation of the species. Some stakeholders are concerned that these changes to the critical habitat regulations may limit the Services' ability to protect species that move because of climate-change-related habitat loss.[91] In the litigation challenging the 2019 final rules, the plaintiffs argue that, by imposing an "elevated certainty requirement" on the Services' determination of what areas are "essential," the new rules would preclude the Services from designating currently unoccupied areas to which species may need to move because of climate

[83] Alaska Oil & Gas Ass'n v. Salazar, 916 F. Supp. 2d 974, 1001 (D. Alaska 2013).

[84] *Id.*

[85] *Id.* at 555-56.

[86] *See id.* at 558-59 (listing the studies, reports, and climate models that predict sea ice loss and rescission as a result of climate change). *Cf.* All. for the Wild Rockies v. Lyder, 728 F. Supp. 2d 1126, 1139-40 (D. Mont. 2010) (upholding FWS's decision not to designate unoccupied Canada lynx habitat to account for climate change because the science did not provide the specificity needed to identify the location of lynx habitat in the future).

[87] 16 U.S.C. §1532(5)(A)(i).

[88] Endangered and Threatened Wildlife and Plants; Regulations for Listing Species and Designating Critical Habitat, Final Rule, 84 Fed. Reg. 45,020, 45,043-45 (Aug. 27, 2019).

[89] *Id.* at 45,043.

[90] *Id.* at 45,045.

[91] *Id.* at 45,043.

change as critical habitat.[92] In contrast, other stakeholders see the regulatory changes as complying with the Supreme Court's decision in *Weyerhauser Co. v. FWS* that an area must be "habitat" before the Services may consider whether it is "critical habitat."[93] These stakeholders assert that reasonable certainty that an area has at least one of the essential features necessary to conserve the species ensures that the area is habitat for the species.[94] In addition, landowners claim that these changes remove potential regulatory burdens that critical habitat designations cause, such as requirements that, when issuing permits that may adversely affect critical habitat, federal agencies consult with stakeholders.[95]

Protecting Endangered or Threatened Species

If FWS or NMFS bases its listing decision on climate change effects, FWS or NMFS must also determine whether federal actions that contribute to climate change jeopardize the species under ESA Section 7 or whether an entity that may contribute to climate change is "taking" the species in violation of ESA Section 9. The Services may tailor the Section 9 "take" prohibitions for species listed as threatened under the ESA by using Section 4(d) rules. This section reviews how the Services address climate change effects when protecting listed species under ESA Sections 4(d), 7, and 9.

Prohibiting "Take" Under Sections 9 and 4(d)

ESA Section 9 prohibitions on "taking" a listed species differ for threatened and endangered species. ESA Section 9(a)(1) prohibits the unauthorized "take" of an *endangered* species. *Take* is defined as an act "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or to attempt to engage in any such conduct."[96] In contrast, the ESA does not prohibit the taking of a *threatened* species unless FWS or NMFS decides to extend the Section 9 take prohibitions to the threatened species through a Section 4(d) rule.[97] For threatened species, ESA Section 4(d) requires FWS or NMFS to issue regulations it "deems necessary and advisable to provide for the conservation of such species."[98] In 1978, FWS issued a "blanket 4(d) rule" that extends most of the Section 9 take prohibitions to all threatened species listed by FWS, unless it adopts a specific rule for a particular species.[99] As discussed below, the 2019 revisions to the ESA regulations rescinded FWS's blanket 4(d) rule for newly listed or reclassified species, aligning it with NMFS's practice of issuing species-specific 4(d) rules for threatened species.[100]

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[92] Complaint for Declaratory and Injunctive Relief at 20-21, Center for Biological Diversity v. Bernhardt, No. 3:19-cv-05206 (N.D. Cal. Aug. 21, 2019).

[93] Bonner R. Cohen, *Endangered Species Act Reforms Will Benefit Wildlife and People*, THE HILL (Aug. 16, 2019), https://thehill.com/opinion/energy-environment/457534-endangered-species-act-reforms-will-benefit-wildlife-and-people.

[94] *Id. See also* Press Release, Dep't of the Interior, What They Are Saying – Endangered Species Act Announcement, https://www.doi.gov/pressreleases/what-they-are-saying-endangered-species-act-announcement (last visited Sept. 19, 2019).

[95] *Id.*

[96] 16 U.S.C. § 1538(a)(1); 1532(19).

[97] *Id.* § 1533(d).

[98] *Id.* § 1533(d).

[99] 50 C.F.R. § 17.31(a), (c); Protection for Threatened Species of Wildlife; Final Rule, 43 Fed. Reg. 18,180 (April 28, 1978).

[100] Endangered and Threatened Wildlife and Plants; Regulations for Prohibitions to Threatened Wildlife and Plants,

Climate Change and Section 4(d) Rules for Threatened Species

A frequent debate among legal scholars and stakeholders is whether the take prohibitions should extend to GHG-emitting activities that contribute to climate change.[101] Stakeholders seeking greater protection for species argue that sources of GHG emissions cause an unlawful "take" under ESA Section 9 because GHG emissions contribute to climate change, which harms the species.[102] However, the Services and critics of this approach assert that the Section 9 take prohibitions can apply only if GHG-emitting activity directly and intentionally takes the species or negatively affects its habitat.[103]

In the litigation challenging the polar bear's 4(d) rule, the federal court's decision highlighted the challenges in applying the take prohibitions to GHG-emitting activities. Plaintiffs challenged FWS's 4(d) rule that specified prohibitions necessary to conserve the threatened polar bear species.[104] The rule, among other things, did not prohibit activities outside the species' current range that may incidentally affect polar bears, such as GHG-emitting activities that may contribute to the loss of sea ice habitat.[105] Plaintiffs claimed that the rule was arbitrary and capricious and violated the ESA by failing to address threats to the polar bear from GHG emissions and the loss of potential sea ice habitat outside the polar bears' range.[106]

In rejecting this argument, the court concluded FWS had a rational basis not to extend the ESA's take prohibitions because there was insufficient evidence to suggest that regulating offsite GHG-producing activities would produce direct conservation benefits to the polar bear.[107] FWS explained that the best available science and climate modeling could not identify an individual GHG emission source as the cause of a specific adverse effect on the polar bear or its habitat.[108] The court acknowledged that it cannot "decide based upon its own independent assessment" "whether the ESA is an effective or appropriate tool to address the threat of climate change . . . . The answer to that question will ultimately be grounded in science and policy determinations that are beyond the purview of this Court."[109]

Based on this judicial opinion, it seems unlikely that the Services will use Section 4(d) rules to prohibit GHG-emitting activities without further advances in science that can establish a causal

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Final Rule, 84 Fed. Reg. 44,753, 44,753-54 (Aug. 27, 2019).

[101] Michael C. Blumm & Kya B. Marienfeld, *Endangered Species Act Listings and Climate Change: Avoiding the Elephant in the Room*, 20 ANIMAL L. 277, 298-300 (2014).

[102] *See* David Owen, *Endangered Species Act, in* GLOBAL CLIMATE CHANGE AND U.S. LAW 195 (Michael B. Gerrard & Jody Freeman eds., 2d ed. 2014).

[103] *Id.*

[104] *In re* Polar Bear Endangered Species Act Listing & § 4(d) Rule Litig., 818 F. Supp. 2d. 214, 218 (D.D.C. 2011); Special Rule for the Polar Bear, 73 Fed. Reg. 76,249 (Dec. 16, 2008).

[105] 73 Fed. Reg. at 76251.

[106] *In re* Polar Bear Endangered Species Act Listing & § 4(d) Rule Litig., 818 F. Supp. 2d. 214, 218 (D.D.C. 2011) (highlighting plaintiffs' contention that FWS "[could not] effectively provide for the conservation of the polar bear without addressing global greenhouse gas emissions, which the agency itself identified as the cause of increasing Arctic temperatures that are expected to lead to a significant decline of the polar bear's sea ice habitat").

[107] *Id.* at 231-33 ("The Service found no evidence to suggest that extending the ESA incidental take provisions outside the range of the polar bear would produce similar conservation benefits, however. With respect to these indirect impacts, in the event that an incidental take can be identified and attributed to a specific cause originating outside the species' range, the Service found that the incidental take provisions of the MMPA are sufficient to address that violation.").

[108] 73 Fed. Reg. at 76266.

[109] *In re* Polar Bear Endangered Species Act Listing, 818 F. Supp. 2d at 234.

connection between the individual GHG emission source and the specific adverse effect on the species or its habitat.

Rescinding FWS's Blanket 4(d) Rule

In 2019, FWS rescinded the "blanket 4(d) rule" for newly listed or reclassified threatened species, and will now adopt species-specific 4(d) rules.[110] Because the rescission applies prospectively, the blanket 4(d) rule continues to prohibit the take of threatened species covered by the blanket 4(d) rule that FWS listed prior to the effective date of the rescission.[111] This species-specific approach aligns with NMFS's practice of establishing specific 4(d) rules for each threatened species.[112]

How the rescission of FWS's blanket 4(d) rule may affect the protection of species threatened by climate change effects depends on its implementation. While some stakeholders are concerned that the rescission will "weaken" protections for threatened species because of delays in issuing species-specific 4(d) rules, it may have little effect on whether GHG-emitting activities are prohibited.[113] FWS has not adopted a 4(d) rule that prohibited GHG-emitting activities that could affect threatened species and their habitats, prohibiting only actions that directly and intentionally take threatened species.[114] For threatened species affected by climate change, legal scholars argue that such "limited" 4(d) rules have "no real effect on the activities that are causing climate change, the acknowledged primary factor contributing to [the] species' decline."[115]

Section 7 Consultation

Some stakeholders and legal scholars view the ESA Section 7 consultation requirement as a potentially powerful tool to limit GHG-emitting activities that may further jeopardize threatened or endangered species that were listed, at least in part, because of climate change effects.[116] In practice, the Services and the courts have acknowledged that climate change should be considered during the consultation process.[117] However, the courts have not required the Services to curb activities that may contribute to climate change to protect threatened or endangered species.

In general, ESA Section 7 requires federal agencies to "insure that any action authorized, funded, or carried out by such agency . . . is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of

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[110] Endangered and Threatened Wildlife and Plants; Regulations for Prohibitions to Threatened Wildlife and Plants, Final Rule, 84 Fed. Reg. 44,753, 44,753-54 (Aug. 27, 2019).

[111] *Id.*

[112] *Id.*

[113] *See* Complaint for Declaratory and Injunctive Relief at 3, Center for Biological Diversity v. Bernhardt, No. 3:19-cv-05206 (N.D. Cal. Aug. 21, 2019). *See also* Jake Li, *Last Week's Endangered Species Regulations: What Really Happened?* ENVTL. POLICY & INNOVATION CENTER (Aug. 20, 2019), http://policyinnovation.org/the-real-story-on-the-new-endangered-species-act-rules/; Jonathan Wood, The New Endangered Species Act Rules, Explained, PROPERTY AND ENV'T RESEARCH CENTER (Aug. 14, 2019), https://www.perc.org/2019/08/14/the-new-endangered-species-act-rules-explained/.

[114] *See* Michael C. Blumm & Kya B. Marienfeld, *Endangered Species Act Listings and Climate Change: Avoiding the Elephant in the Room*, 20 ANIMAL L. 277, 298-299 (2014) (discussing the lack of taking prohibitions related to GHG emissions in the polar bear 4(d) rule and the proposed wolverine 4(d) rule).

[115] *Id.*

[116] *See, e.g.*, James Ming Chen, *The Fragile Menagerie: Biodiversity Loss, Climate Change, and the Law*, 93 IND. L.J. 303, 334 -35 (2018).

[117] *See* David Owen, *Endangered Species Act, in* GLOBAL CLIMATE CHANGE AND U.S. LAW 193-94 (Michael B. Gerrard & Jody Freeman eds., 2d ed. 2014) (concluding that Section 7 has played "no role" in mitigating GHG emissions).

[the critical] habitat of such species."[118] A federal agency planning any action must consult with NMFS or FWS if the federal agency determines that its action "may" jeopardize a listed species or adversely affect its habitat.[119] The ESA and its implementing regulations specify the types of consultation (e.g., informal versus formal consultation), when each type of consultation is required, and the procedures the agency proposing the action and the Services must follow.[120]

After the consultation with an agency, the Services must issue a biological opinion (BiOp) based on "the best scientific and commercial data available" that determines whether the proposed action is likely to jeopardize the ESA-listed species or adversely modify critical habitat.[121] If the Services determine that an agency action would likely jeopardize the listed species or its critical habitat, the agency must terminate the action, implement a Service-proposed alternative action, or seek an exemption.[122] If the agency action is not likely to jeopardize the continued existence of the species but is nonetheless likely to result in some "incidental take" of the species, the BiOp must set forth an incidental take statement, which specifies the permissible "amount or extent" of this effect on the species.[123]

Various court decisions have faulted the Services for failing to discuss climate change effects when assessing whether federal action will jeopardize a listed species or adversely modify its habitat.[124] In the 2007 decision, *Natural Resources Defense Council v. Kempthorne*, a federal district court in California held that FWS acted arbitrarily and capriciously when analyzing potential effects on the threatened delta smelt *(Hypomesus transpacificus)* from a large water diversion project.[125] The court determined that the "absence of <u>any</u> discussion in the BiOp of how to deal with any climate change is a failure to analyze a potentially 'important aspect of the problem.'"[126] In rejecting FWS's claim that the climate change studies did not merit analysis because they were inconclusive, the court concluded that without any meaningful discussion in the BiOp, it was "impossible" for the court to determine whether the climate studies were "rationally discounted because of [their] inconclusive nature, or arbitrarily ignored."[127]

Similarly, plaintiffs successfully challenged NMFS's BiOp that concluded that changes to a fish hatchery operation were not likely to jeopardize the species or adversely affect critical habitat for the Upper Columbia River spring Chinook salmon (*Oncorynchus tshawytscha*) or steelhead (*Oncorhynchus mykiss*).[128] A federal district court in Washington ruled that NMFS's BiOp was arbitrary and capricious because it failed to analyze adequately climate change effects from the

[118] 16 U.S.C. § 1536(a)(2).

[119] *Id.* § 1536(a)(2); 50 C.F.R. §402.14(a).

[120] For additional information on Section 7 consultation procedures, see CRS In Focus IF11241, *The Legal Framework of the Endangered Species Act (ESA)*, by Erin H. Ward; and CRS Report RL31654, *The Endangered Species Act: A Primer*, by Pervaze A. Sheikh.

[121] 50 C.F.R. § 402.14(g)(8), (h)(2)–(3).

[122] *Id.* § 402.15(a)-(c).

[123] *Id.* § 402.14(i).

[124] *Id.* § 402.14(g); Pac. Coast Fed'n of Fishermen's Ass'ns v. Gutierrez, 606 F. Supp. 2d 1122, 1184 (E.D. Cal. 2008); Nat. Res. Def. Council v. Kempthorne, 506 F. Supp. 2 322, 374-76 (E.D. Cal. 2007).

[125] *Kempthorne*, 506 F. Supp. 2d at 370.

[126] *Id.* (quoting Pac. Coast Fed'n of Fishermen's Ass'ns v. Gutierrez, 606 F. Supp. 2d 1122, 1134 (E.D. Cal. 2008)) (emphasis in original).

[127] *Id.* at 369.

[128] Wild Fish Conservancy v. Irving, 221 F. Supp. 3d 1224 (E.D. Wash. 2016).

hatchery's modified operations and water use.[129] The court explained that "[t]he best available science indicates that climate change will affect stream flow and water conditions throughout the Northwest" and that the lack of a model or study specifically addressing local climate change effects did not permit NMFS to ignore this factor.[130] The court found that NMFS had included "no discussion whatsoever" of the potential effects of climate change on the hatchery's future operations and water use, and that it was not sufficient for NMFS to say that the local area at issue was less prone to climate change effects than other areas in the region.[131]

When the Services have discussed climate change effects from federal actions, some courts have scrutinized the Services' rationale in dismissing such effects when issuing a "no jeopardy" BiOp. For example, the Ninth Circuit 2017 majority opinion in *Turtle Island Restoration Network v. Department of Commerce*[132] examined NMFS's BiOp that concluded that a fishery expansion would neither jeopardize the continued existence of the endangered loggerhead sea turtle (*Caretta caretta*) nor the endangered leatherback sea turtle (*Dermochelys coriacea*). For the loggerhead sea turtles, the court ruled that NMFS had acted arbitrarily and capriciously by failing to incorporate into its jeopardy analysis climate-model data that predicted that the fishery expansion would "exacerbate" loggerhead population decline due to climate change.[133] In contrast, for the leatherback sea turtles, the majority upheld NMFS's no-jeopardy conclusion, rejecting the plaintiffs' argument that NMFS erred by limiting the "temporal scale" of its analysis to 25 years despite NMFS's determination that rising temperatures from climate change would have effects on leatherback sea turtles over the next century.[134] Because NMFS's BiOp considered and concluded that it could not credibly predict climate change effects on the leatherback turtles, the majority held that NMFS adequately considered the climate change effects in its no-jeopardy conclusion.[135]

Despite some success challenging BiOps, neither the courts nor the Services have found that climate change effects from a proposed federal action jeopardize the species or adversely modify its habitat.[136] Some stakeholders and legal scholars argue that when a proposed federal action contributes to climate change that may jeopardize the species or adversely modify its habitat, the agency is required to consult with the Services.[137] If the Services determine that such actions jeopardize the species or its habitat, these stakeholders assert that the Services should use Section 7 consultation authority to limit or modify the GHG emissions from the proposed federal action.[138] However, the Department of the Interior issued a Solicitor's Opinion explaining that Section 7 consultation is not required if no causal connection exists among the proposed federal

[129] *Id.* at 1228.

[130] *Id.* at 1233.

[131] *Id.* at 1233-34. The judge remanded the matter for further consultation. *Id.* at 1234.

[132] Turtle Island Restoration Network v. Dep't of Commerce, 878 F.3d 725 (9th Cir. 2017).

[133] *Id.* at 738-39.

[134] *Id.* at 739.

[135] *Id.* at 740-41.

[136] David Owen, *Endangered Species Act, in* GLOBAL CLIMATE CHANGE AND U.S. LAW 194 (Michael B. Gerrard & Jody Freeman eds., 2d ed. 2014).

[137] *See* James Ming Chen, *The Fragile Menagerie: Biodiversity Loss, Climate Change, and the Law*, 93 IND. L.J. 303, 335 (2018) (discussing how greater enforcement of Section 7 consultation requirements could have a greater effect on climate mitigation); David Owen, *Endangered Species Act, in* GLOBAL CLIMATE CHANGE AND U.S. LAW 192 (Michael B. Gerrard & Jody Freeman eds., 2d ed. 2014) (analyzing stakeholder arguments for using Section 7 to address GHG-emitting activities).

[138] *Id.*

action, a reasonably certain climate change effect, and the listed species.[139] Therefore, without evidence of a causal connection between the proposed action and climate change effects, Section 7 consultation will not be triggered, foreclosing any opportunity for the Services to consider mitigating the climate change effects from such actions. Federal agencies and the Services have continued to use this policy to comply with their Section 7 consultation obligations.[140]

Revising Section 7 Consultation Regulations

The 2019 ESA regulation revisions codified the Services' existing Section 7 climate change policy. Existing ESA Section 7 regulations require the federal agency proposing the action and the Services to evaluate the status of the listed species or critical habitat, the "effects of the action," and cumulative effects.[141] Prior to the 2019 revisions, ESA regulations defined "effects of the action" to include both direct and indirect effects of a proposed federal action on the species or critical habitat.[142] The 2019 ESA rule revised the definition of "effects of the action" to include all consequences to listed species or critical habitat that are *caused by* the proposed action.[143] The definition specified that a consequence is "caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur."[144] The Services provided a two-part test to identify a consequence: (1) whether the effect or activity would not occur but for the action and (2) whether the effect or activity is reasonably certain to result from the action.[145] The preamble explains that "if the agency fails to take the proposed action, and the activity would still occur, there is not 'but for' causation."[146]

Some stakeholders support the revisions to the Section 7 consultation requirements, asserting that the changes will "help decrease the resources needed for federal agencies and applicants to describe the effects of their actions to listed species or critical habitat when engaged in section 7 consultation."[147] Other stakeholders contend that the proposed changes will "unreasonably narrow" and "bar" Section 7 consultation when climate change effects do not affect immediately the geographic area of the project.[148]

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[139] *See* Memorandum from David Longly Bernhardt, Solicitor, Dept. of the Interior, *Guidance on the Applicability of the Endangered Species Act's Consultation Requirements to Proposed Actions Involving the Emission of Greenhouse Gases* (Oct. 3, 2008).

[140] *See, e.g.*, Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles—Phase 2, Final Rule, 81 Fed. Reg. 73,478, 73,969 (Oct. 25, 2016) (concluding that the best scientific data available were insufficient to draw a causal connection between GHG emissions and effects on the species in its habitat).

[141] 50 C.F.R. § 402.14(g)(2)-(3).

[142] *Id*.

[143] Endangered and Threatened Wildlife and Plants; Regulations for Interagency Cooperation, Final Rule, 84 Fed. Reg. 44,976, 44,976-77 (Aug. 27, 2019).

[144] *Id.* at 45,016 (to be codified in 50 C.F.R. § 402.02).

[145] *Id.* at 44,978.

[146] *Id.* at 44,977.

[147] Press Release, Sen. Ted Cruz, Cruz, Colleagues Praise Trump Administration's Act to Modernize Broken ESA Processes Negatively Impacting Species and Landowners (Aug. 12, 2019), https://www.cruz.senate.gov/?p=press_release&id=4626.

[148] Press Release, Def. of Wildlife, Trump Administration Releases Regulations Endangering Imperiled Wildlife (Aug. 12, 2019), https://defenders.org/newsroom/trump-administration-releases-regulations-endangering-imperiled-wildlife; Complaint for Declaratory and Injunctive Relief at 23-28, Center for Biological Diversity v. Bernhardt, No. 3:19-cv-05206 (N.D. Cal. Aug. 21, 2019).

Potential Implications

When the ESA was enacted in 1973, Congress did not consider climate change as a significant factor in conserving endangered species.[149] Although the Services and the courts have acknowledged that actions taken under the ESA must consider climate change effects on species and their habitats, the debate continues on whether the ESA can adequately protect and conserve species threatened by climate change effects. Stakeholders disagree on what role the ESA should play in addressing climate change, with some arguing that the ESA is not equipped to mitigate climate change effects.[150] Other stakeholders believe that the Services can and should wield the ESA to protect species threatened by climate change and to curb activities contributing to climate change.[151]

Generally, legal scholars agree that litigation has influenced how the Services factor climate change effects into ESA decisions.[152] Legal challenges have helped to ensure that the Services consider projected climate change effects on species in their ESA decisions. In light of the judicial deference afforded to the Services, the courts have not expanded the ESA as a tool to protect listed species by regulating activities that contribute to climate change.[153] From the Services' viewpoint, the best available scientific and commercial data have been insufficient to determine that GHG emissions from a proposed activity cause detrimental effects on the species or its habitat.[154] However, as climate modeling and technology advance, the Services may be able to predict the causes and effects from climate change on species with greater scientific certainty and data.

Members of Congress may be interested in the implications of revising the ESA to clarify its treatment of climate change effects.[155] Legislation could clarify whether ESA Section 9 prohibitions or Section 7 consultation requirements apply to indirect harms that contribute to climate changes that may affect a species' survival, or how the Services should address scientific uncertainty associated with projected climate change effects when making listing determinations. As legislative proposals continue to develop, legal battles over the how the Services interpret climate change effects in their ESA decisions will likely continue.

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[149] Barry Kellman, *Climate Change in the Endangered Species Act: A Jurisprudential Enigma*, 46 ENVTL. L. REP. 10845, 10854 (2016); David Owen, *Endangered Species Act, in* GLOBAL CLIMATE CHANGE AND U.S. LAW 196 (Michael B. Gerrard & Jody Freeman eds., 2d ed. 2014).

[150] *See* David Owen, *Endangered Species Act, in* GLOBAL CLIMATE CHANGE AND U.S. LAW 188-196 (Michael B. Gerrard & Jody Freeman eds., 2d ed. 2014) (discussing competing views on the effectiveness of using ESA to address climate change).

[151] *Id. See also* J.B. Ruhl, Climate Change and the Endangered Species Act: Building Bridges to the No-Analog Future, 39 ENTVL. L. REP. 10,735, 10,739-44 (discussing policy drivers to integrate climate change considerations and actions into the ESA).

[152] Barry Kellman, *Climate Change in the Endangered Species Act: A Jurisprudential Enigma*, 46 ENVTL. L. REP. 10845, 10854 (2016); *See also* Jennifer Hijazi, *Climate Change Looms Large in Endangered Species Litigation*, E&E NEWS (July 2, 2019) (describing various legal petitions challenge the Services' ESA decisions regarding climate change), https://www.eenews.net/stories/1060682935.

[153] David Owen, *Endangered Species Act, in* GLOBAL CLIMATE CHANGE AND U.S. LAW 196 (Michael B. Gerrard & Jody Freeman eds., 2d ed. 2014)

[154] Endangered and Threatened Wildlife and Plants; Regulations for Interagency Cooperation, Final Rule, 84 Fed. Reg. 44,976, 46,991 (Aug. 27, 2019).

[155] *See* Kellie Lunney, *Dems, GOP will Duke It Out on ESA Overhaul*, E&E DAILY (Sept. 18, 2019), https://www.eenews.net/eedaily/2019/09/18/stories/1061132049 (discussing various legislative proposals seeking to revise the ESA).

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