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**IN THE UNITED STATES DISTRICT COURT**

**FOR THE DISTRICT OF ALASKA**

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| STATE OF ALASKA; AND NORTH SLOPE BOROUGH,<br><br>Plaintiffs,<br><br>v.<br><br>NATIONAL MARINE FISHERIES SERVICE,<br><br>Defendant,<br><br>and<br><br>CENTER FOR BIOLOGICAL DIVERSITY,<br><br>Intervenor-Defendant. | Case No. 3:22-cv-00249-JMK<br><br>**PLAINTIFFS' OPENING BRIEF**<br><br>**(Oral Argument Requested)** |

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## I. INTRODUCTION

The Endangered Species Act ("ESA")[1] establishes a framework for protecting species that are threatened with extinction through listing such species and designating critical habitat areas that are essential for their conservation.[2] The Fish and Wildlife Service ("FWS") and National Marine Fisheries Service ("NMFS") administer the ESA.[3] Congress has required that the Services make listing decisions "solely on the basis of the best scientific and commercial data available to [the Services] after conducting a review of the status of the species."[4]

In listing the Arctic subspecies of the ringed seal ("Arctic ringed seal" or "ringed seal") as a threatened species in 2012, NMFS determined that the principal threat to the species is long-term habitat alteration stemming from climate change, relying primarily on climate projections based on modeling from the Intergovernmental Panel on Climate Change's ("IPCC's") Fourth Assessment Report (2007), which NMFS deemed the best available science. NMFS ultimately determined that the modeling and resulting projections in the Fourth Assessment Report were certain enough to say that it is foreseeable that the ringed seal will become endangered due to decreases in sea-ice extent

[1] 16 U.S.C. §§ 1531-1544.

[2] *See Bennett v. Spear*, 520 U.S. 154, 157-58 (1997).

[3] NMFS administers the ESA with respect to marine and anadromous species, such as the ringed seal, while the U.S. Fish and Wildlife Service administers the ESA with respect to other species. *See* 16 U.S.C. § 1532(15) (defining "Secretary"); 50 C.F.R. § 402.01(b). Where appropriate, the two agencies are collectively referred to as the "Services."

[4] 16 U.S.C. § 1533(b)(1)(A); *see also* 50 C.F.R. § 424.11(b)-(c).

and snow cover in the latter half of the 21st century, allowing it to be listed as threatened now, despite its large population and extensive range.

Thereafter, both the FWS and the IPCC in the Fifth Assessment Report (2013) described new information indicating that climate change modeling cannot accurately predict declines in sea-ice and snow cover in the latter half of the century. Plaintiffs filed a petition to delist the ringed seal based on this new information and new population data ("Petition").

The first step in evaluating a petition is a "90-day finding," which analyzes whether the petitioned action—here delisting—"may be warranted." If the petitioned action may be warranted, then the agency makes a "positive 90-day finding" and proceeds to the next level of review. But if the action is found unwarranted, a "negative 90-day finding" is made. In making that determination, NMFS must credit all information that supports delisting (as the petitioned activity) unless that information is "unreliable, irrelevant, or otherwise unreasonable to credit."[5]

Yet, here, in making the 90-day finding that the Petition did not provide new information supporting that delisting may be warranted ("90-Day Finding"), NMFS failed to evaluate evidence that supports delisting. NMFS did not credit the new information from FWS or the IPCC on the speculative nature of modeling that the Petition highlighted nor did it adequately consider new biological data showing that recent declines in sea-ice

[5] *Buffalo Field Campaign v. Williams* (*Buffalo Field II*), 579 F. Supp. 3d 186, 200-04 (D.D.C. 2022) (citation omitted), *appeal dismissed sub nom. Buffalo Field Campaign v. Haaland*, No. 22-5064, 2022 WL 2135456 (D.C. Cir. June 14, 2022).

extent and snow cover have not resulted in decline of the ringed seals' population. Ultimately, this new information shows that the modeling NMFS identified as the best available science in 2012 is too speculative to support its finding that the ringed seal is threatened and that the species has greater environmental resilience than originally believed.

NMFS cannot deem the modeling the best available science and then pick and choose when to rely on the modeling without violating the "best available science" standard. As the Supreme Court made clear, "the obvious purpose of the requirement that each agency 'use the best scientific and commercial data available' is to ensure that the ESA not be implemented haphazardly, on the basis of speculation or surmise."[6]

Vacatur with instructions to issue a positive 90-day finding is necessary given that the best available science at the time the Petition was submitted made clear that NMFS's 2012 finding that the ringed seal is threatened with extinction was speculative. Alternatively, at the very least, in reviewing the Petition, NFMS improperly disregarded more current and better scientific information and data regarding the Arctic ringed seal, requiring vacatur with instructions to the agency to issue a new 90-day finding.

## II. BACKGROUND

### A. ESA Requirements for Listing Species

#### 1. Basic Definitions

The ESA protects species of wildlife, fish, and plants that are determined to be either an endangered species or a threatened species. Under the ESA, an "*endangered species*"

[6] *Bennett*, 520 U.S. at 176-77.

is a species that is presently "*in danger of extinction* throughout all or a significant portion of its range."[7] A "*threatened species*" is defined as a species that is "*likely to become an endangered species within the foreseeable future* throughout all or a significant portion of its range."[8] Thus, a species may be listed as threatened only if it is likely to become "in danger of extinction" within the foreseeable future. The Services' regulations explain:

> [F]oreseeable future extends 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. The Services will describe 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.[9]

**2. The Criteria for Listing Species**

The process for listing a species as endangered or threatened is governed by Section 4 of the ESA and the Services' joint regulations at 50 C.F.R. part 424.[10] Listing decisions must be made "solely on the basis of the best scientific and commercial data available to [the Service] after conducting a review of the status of the species."[11] The Supreme Court, in addressing virtually identical language found in another section of the ESA, explained that this requirement is intended to "to ensure that the ESA not be implemented haphazardly, on the basis of speculation or surmise."[12]

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[7] 16 U.S.C. § 1532(6) (emphasis added).

[8] *Id.* § 1532(20) (emphasis added).

[9] 50 C.F.R. § 424.11(d).

[10] 16 U.S.C. § 1533(a).

[11] *Id.* § 1533(b)(1)(A); *see also* 50 C.F.R. § 424.11(b)-(c).

[12] *See Bennett*, 520 U.S. at 176-77.

The Services have recognized the importance of avoiding speculation in evaluating whether a species may be listed as threatened based on the species' biological status and threats to the species in the foreseeable future. In adopting the current framework for considering the foreseeable future, for example, the Services explained that they "must be able to determine the likelihood of a species' future state, and in some circumstances the best available data may not be sufficient to go beyond speculation" such that it is "insufficient to allow the Services to foresee the future threats and the species' response to those threats."[13] Thus, while absolute certainty is not required, predictions about the future must be reliable, i.e., reasonable to depend upon.[14] The Services also acknowledged that "the precautionary principle does not apply to listing determinations, so we do not list species merely as a precaution if there is not reliable evidence indicating that the species meets the definition of a 'threatened species.'"[15]

**3. The Petition Process**

Members of the public may petition NMFS "to add a species to, or to remove a species from" the list of endangered and threatened species.[16] When such a petition is filed, NMFS must make a finding on whether the petition presents substantial scientific or

[13] Regulations for Listing Species and Designating Critical Habitat, 84 Fed. Reg. 45,020, 45,026 (Aug. 27, 2019) ("Listing Regulations"); *see also id.* at 45,027 (explaining that the Services will not find "the mere possibility of threat occurring sufficient when assessing a species' future status," and acknowledging the Supreme Court's statement that the purpose of the "best scientific and commercial data available" requirement is to prevent speculation).

[14] *Id.* at 45,026-27.

[15] *Id.* at 45,031.

[16] 16 U.S.C. § 1533(b)(3)(A).

commercial information indicating that the petition *may* be warranted within 90 days after receiving the petition to the "maximum extent practicable."[17]

Under NMFS's regulations, "substantial scientific or commercial information" means "credible scientific or commercial information in support of the petition's claims such that a reasonable person conducting an impartial scientific review would conclude that the action proposed in the petition may be warranted."[18] The regulations also provide: "Where the prior review resulted in a final agency action, a petitioned action generally would not be considered to present substantial scientific and commercial information indicating that the action may be warranted *unless the petition provides new information not previously considered*."[19] NMFS has explained that with respect to a prior listing rule, a petitioner may provide new information or data, or "a different analysis or interpretation of, or errors discovered in, the data, model or analytic methodology used in a previous finding" to support the petition.[20]

If NMFS concludes that the petition fails to present substantial information, the process ends; NMFS's 90-day finding is published in the Federal Register and is subject to immediate judicial review.[21] If NMFS concludes that the petition presents substantial information that the petitioned action may be warranted, a positive 90-day finding is

[17] *Id.*; 50 C.F.R. § 424.14(h).

[18] 50 C.F.R. § 424.14(h)(i)

[19] *Id.* § 424.14(h)(iii) (emphasis added).

[20] Revisions to the Regulations for Petitions ("Revision Regulations"), 81 Fed. Reg. 66,461, 66,474 (Sept. 27, 2016).

[21] 16 U.S.C. § 1533(b)(3)(A), (b)(3)(C)(ii).

published and the agency must commence a "12-month review" of the status of the species.[22] Within 12 months of its receipt of the petition and following public comment, NMFS must determine whether the petitioned action is warranted.[23] Within one year of publishing the warranted finding, NMFS must either issue a final regulation implementing its determination or withdraw the proposed regulation.[24]

The substantial information standard applicable to petitions is not particularly rigorous, given that the 90-day finding is merely the initial step in the listing/delisting process. The threshold is whether a person conducting an impartial scientific review would conclude that the petitioned action *may* be warranted.[25] Conclusive evidence supporting the petitioned action is not required.[26] NMFS's review is limited to the information contained in the petition or already existing in the agency's files.[27] Where there is disagreement among credible scientific viewpoints, the agency cannot resolve such disagreement at the 90-day stage or discount scientific studies that support the petitioned action.[28]

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[22] *Id.* § 1533(b)(3)(B).

[23] *Id.* § 1533(b)(3)(B)(ii), (b)(5).

[24] *Id.* § 1533(b)(6)(A).

[25] *See, e.g.*, *Buffalo Field Campaign v. Zinke* (*Buffalo Field I*), 289 F. Supp. 3d 103, 106 (D.D.C. 2018).

[26] *Id.*

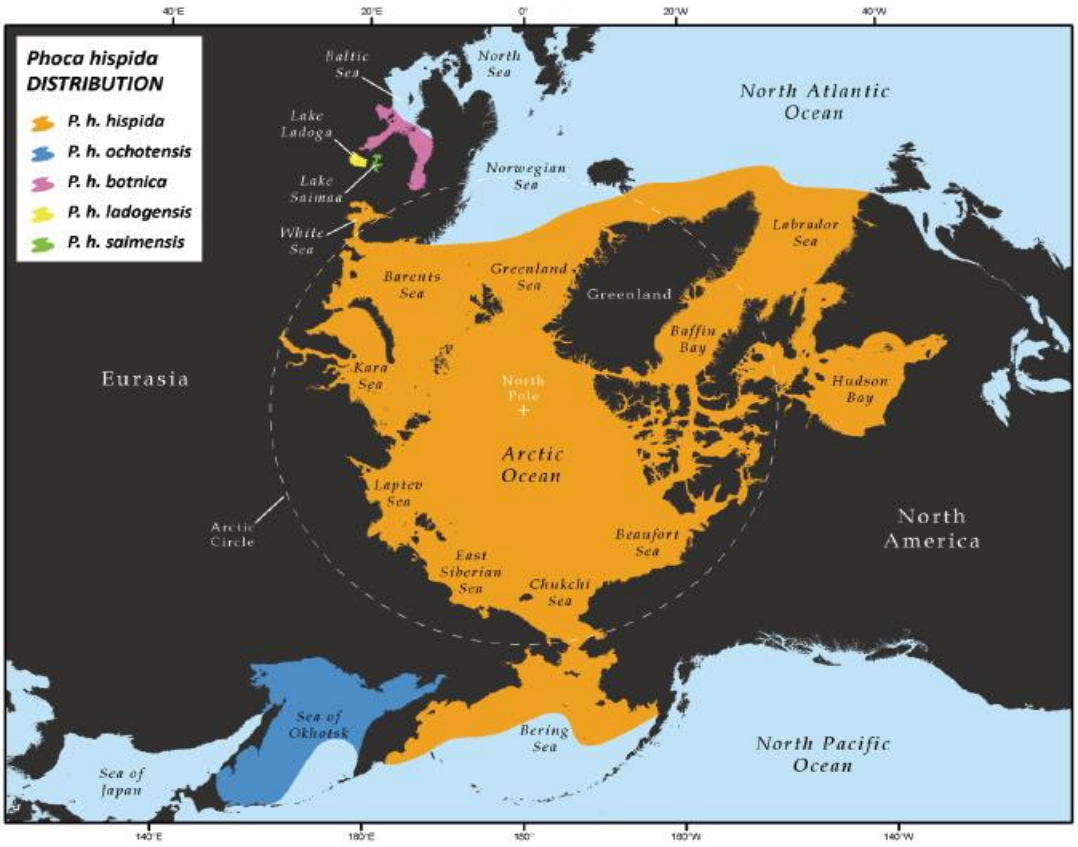
[27] *Id.*

[28] *Id.* at 109-10; *Buffalo Field II*, 579 F. Supp. 3d at 197-98.

## B. Factual Background

### 1. The Arctic Ringed Seal and NMFS's 2012 Listing Rule

The focus of this action is the Arctic ringed seal, which is one of five recognized subspecies of ringed seal.[29] The Arctic ringed seal is one of the most common mammals in the Arctic Basin. The figure below depicts the current range of all five ringed seal subspecies; the Arctic ringed seal's range is depicted in orange.[30]




[29] *See* Threatened Status for the Arctic, Okhotsk, and Baltic Subspecies of the Ringed Seal, 77 Fed. Reg. 76,706, 76,706 (Dec. 28, 2012) ("Listing Rule"), at NMFS00029.

[30] U.S. Dep't of Commerce, NOAA Technical Memorandum NMFS-AFSC-212, Status Review of the Ringed Seal (*Phoca hispida*) (Dec. 2010) ("Status Review Report"), at REF00023.

The current Arctic ringed seal population is estimated to be in the millions, and it is believed to be stable or increasing.[31]

Despite the Arctic ringed seal's large and stable population and its circumpolar range, NMFS listed the Arctic ringed seal as a "threatened" species under the ESA in 2012 ("Listing Rule").[32] This listing was based on predictions that global climate change would cause decreases in sea-ice extent, thickness, and duration along with reductions in snow cover on the sea-ice in the Arctic region, purportedly threatening the ringed seal with extinction by 2100.[33]

NMFS's findings in the Listing Rule were based primarily on information presented in a report issued by NMFS's December 2010 "Status Review of the Ringed Seal (*Phoca hispida*)" ("Status Review Report").[34] To estimate future impacts from climate change, the status review team relied on various atmosphere-ocean general circulation models developed by research centers around the world that were compiled by the Coupled Model Intercomparison Project, known as "CMIP3."[35] CMIP3 models in turn informed the climate change projections in the Fourth Assessment Report ("AR4") issued in 2007 by

[31] *See, e.g.*, Listing Rule, at NMFS00039.

[32] *See generally* Listing Rule, at NMFS00029. The Listing Rule became effective on February 26, 2013. *Id.* at NMFS00029.

[33] *Id.* at NMFS00031-33, 00039.

[34] *Id.* at NMFS00029. The Status Review Report is found at REF00001 to REF00266.

[35] *See* Status Review Report, at REF00058-126; *see also* Listing Rule, at NMFS00030 (discussing modeling).

the IPCC, on which the NMFS Status Review Report heavily relied.[36] The IPCC was established by the World Meteorological Organization and the United Nations Environment Programme to provide governments with information on the current state of scientific knowledge about the science of climate change.[37] The status review team found that the CMIP3 models generally provide reliable projections of future changes in climate on a large scale.[38]

Nonetheless, the CMIP3 models' climate projections varied widely due to various factors summarized in the Status Review Report.[39] The most serious problem, particularly for projections beyond 2050 to the end of the 21st century, is the wide variability created by the range of hypothetical emission scenarios developed by the IPCC. These hypothetical scenarios were based on assumptions about worldwide population, economic growth, technology, regulation, energy sources and use, agriculture, and other socioeconomic factors affecting future greenhouse gas emissions through the end of this century.[40] As a result, the models produce much different greenhouse gas emissions estimates depending on the emissions scenario used, which in turn produce dramatically

[36] *See, e.g.*, Status Review Report, at REF00063-66.

[37] *See* IPCC, Climate Change 2013: The Physical Science Basis (2013) ("AR5"), at REF01528.

[38] Status Review Report, at REF00063.

[39] *Id.* at REF00064-65.

[40] *See* IPCC, Climate Change 2007: Synthesis Report (2007) ("AR4 Synthesis Report"), at REF00397-400 (describing the emissions scenarios).

different predictions about future changes in global temperatures and other climate-related impacts by the end of the century.[41]

The NMFS status review team acknowledged that there is "no one best model."[42] Instead, the term asserted that uncertainty between different models could be addressed and mitigated by using ensemble methods that combine the results of multiple models.[43] But in this case, many of the CMIP3 models performed poorly—they were unable to reproduce observed features of recent climate in the Arctic Basin. As a result, 17 of the 23 CMIP3 models were eliminated from consideration.[44] This "culling" left an even smaller number of models that addressed future climatic conditions in the Arctic Basin.[45] For example, only one model was deemed to sufficiently provide reliable snow data.[46] For the Beaufort Sea region, two of the six remaining models were disregarded because they underestimated the summer sea-ice extent.[47] For Baffin Bay, the Canadian Arctic Archipelago, and the Greenland, Kara, and Laptev Seas regions, none of the models performed satisfactorily, and they could not be used to predict future conditions in those areas.[48]

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[41] AR4 Synthesis Report, at REF00397 Fig. 3.1 (depicting projections based on emissions scenarios).

[42] Status Review Report, at REF00065.

[43] *Id.* at REF00064.

[44] *Id.* at REF00065-66.

[45] *Id.* at REF00066-73.

[46] *See id.* at REF00066, REF00096.

[47] *Id.* at REF00082.

[48] *Id.* at REF00092.

Despite these problems, NMFS relied on the CMIP3 model projections to assess impacts from climate change on the Arctic ringed seal through 2100, determining that sea-ice would decline throughout this century within the ringed seal's circumpolar range, and that by the end of the century, snow depth in the spring would likely be inadequate to support formation and occupation of birth lairs over much of the species' range.[49] Notably, NMFS relied on model projections using the IPCC's hypothetical emission scenarios "A2" and "A1B," which were the high emissions scenario and an intermediate emissions scenario, respectively, and disregarded the IPCC's four other emission scenarios.[50] Thus, the two scenarios used by NMFS did not reflect the full range of variability (i.e., uncertainty) in the IPCC's modeling.[51]

Ultimately, NMFS failed to address the extent to which global warming would reduce the Arctic ringed seal's habitat by 2100. Instead, the agency described predicted habitat changes in the Arctic region in very general terms (e.g., loss of sea-ice and reductions in snow cover) and without specifically addressing the relationship between habitat changes and potential declines in the species' population.[52]

NMFS's listing determination stated:

> *Arctic [ringed seal] subspecies*: (1) There are no specific estimates of population size available for the Arctic subspecies, but most experts postulate that the population numbers in the millions. (2) The depth and duration of

[49] Listing Rule, at NMFS00030-33, 00039.

[50] *Id.* at NMFS00046; *see also* AR4 Synthesis Report, at REF00397-99 (describing hypothetical emissions scenarios).

[51] *See* AR4 Synthesis Report, at REF00397 Fig. 3.1 (depicting range of IPCC scenarios).

[52] *See generally* Status Review Report, at REF00011-14.

> snow cover are forecasted to decrease substantially throughout the range of the Arctic ringed seal. Within this century, snow cover is forecasted to be inadequate for the formation and occupation of birth lairs *over most of the subspecies' range*. (3) Because ringed seals stay with the ice as it annually advances and retreats, the southern edge of the ringed seal's range *may* initially shift northward. Whether ringed seals will continue to move north with retreating ice over the deeper, less productive Arctic Basin waters and whether the species that they prey on will also move north *is uncertain*. (4) The Arctic ringed seal's pupping and nursing seasons are adapted to the phenology of ice and snow. The projected decreases in sea ice, snow cover, and thermal capacity of birthing lairs *will likely lead* to decreased pup survival. *Thus, within the foreseeable future it is likely that the number of Arctic ringed seals will decline substantially, and they will no longer persist in substantial portions of their range*. We have determined that the Arctic subspecies of the ringed seal is not in danger of extinction throughout all of its range, but is likely to become so within the foreseeable future. Therefore, we are listing it as threatened.[53]

On December 28, 2012, the Listing Rule was published and the Arctic ringed seal was listed as a threatened species based on the predicted impact of long-term climate change, which, in turn, was based on AR4's long-term climate projections.

### 2. Legal Challenges to the Ringed Seal Listing Rule

In 2014, the Listing Rule for the ringed seal was challenged in the Alaska District Court by two groups of plaintiffs, including Plaintiffs here.[54] The court, in a decision written by Judge Beistline, summarized the primary issue as "whether or not it was reasonable for NMFS to list the Arctic ringed seals as a 'threatened species,' while the population is strong and healthy, based primarily upon speculation as to what

[53] Listing Rule, at NMFS00039 (emphasis added).

[54] *See Alaska Oil & Gas Ass'n v. Nat'l Marine Fisheries Serv.* (*AOGA I*), 2016 WL 1125744 (Mar. 17, 2016), *rev'd sub nom. Alaska Oil & Gas Ass'n v. Ross* (*AOGA II*), 722 Fed. App'x 666 (9th Cir. 2018).

circumstances may or may not exist 80 to 100 years from now."[55] The court concluded that "forecasting more than some 80 years into the future is simply too speculative and remote to support a determination that the Arctic ringed seal is in danger of becoming extinct."[56] The court noted that "no significant threat to the Arctic ringed seal is contemplated until sometime after 2050, but somewhere around 2090-2100," and that as of that date, NMFS had acknowledged that "it lack[ed] any reliable data as to the actual impact on the ringed seal population as a result of the loss of sea-ice."[57]

On appeal, the Ninth Circuit reversed. That court believed that it was bound by the decision issued in an earlier appeal, *Alaska Oil & Gas Ass'n v Pritzker*, which concerned the listing of the Pacific bearded seal based on the IPCC's climate models.[58] The court explained that under *Pritzker*, NMFS did not have to wait until it has "quantitative data reflecting the species' decline, its population tipping point, and the exact year in which that tipping point would occur before it could adopt conservation policies to prevent that species' decline."[59] The court also determined that NMFS's finding that the Arctic ringed seal was likely to become endangered in the foreseeable future was reasonable and supported by the climate modeling.[60] The court explained that the IPCC's climate

[55] *AOGA I*, 2016 WL 1125744, at *1.

[56] *Id.* at *14.

[57] *Id.*

[58] *AOGA II*, 722 Fed. App'x at 668 (citing and following *Alaska Oil & Gas Ass'n v. Pritzker*, 840 F.3d 671 (9th Cir. 2016)).

[59] *Id.* (quoting *Pritzker*, 840 F.3d at 683).

[60] *Id.*

modeling constituted the best available science and supported a determination that a species reliant on sea-ice likely would become endangered in the foreseeable future.[61]

### 3. Plaintiffs' 2019 Petition to Delist the Ringed Seal

On March 26, 2019, the State of Alaska, Arctic Slope Regional Corp., Iñupiat Community of the Arctic Slope, and the North Slope Borough submitted to NMFS their Petition to delist the Arctic ringed seal.[62] The Petition presented post-listing climate projections and related data, as well as several years of post-listing information on Arctic ringed seal biology, which raised serious questions about the 2012 "threatened" determination and showed that NMFS erred in the confidence the agency placed in the long-term projections of climate change and its impact on the species.

First, the Petition demonstrated that NMFS's determination that the "foreseeable future" for the Arctic ringed seal extended to 2100 was erroneous. It explained the FWS (which also administers the ESA) had declined to list the Pacific walrus, another marine mammal that depends on sea-ice to access offshore breeding and feeding areas. In that case, FWS relied on new climate change projections issued by the IPCC in its Fifth Assessment Report ("AR5"), which incorporated new modeling and research findings, including monthly projections of sea-ice. Although the AR5 projections extended to 2100 like the AR4 climate change projections that NMFS relied on, FWS determined that beyond 2060, the conclusions concerning the impacts on the Pacific walrus population

[61] *Id.*

[62] Petition to Delist the Arctic Subspecies of Ringed Seal (*Phoca hispida hispida*) under the Endangered Species Act (Mar. 26, 2019) ("Petition"), NMFS00073-103.

were speculative rather than reliable predictions, and it therefore limited the foreseeable future timeframe to 2060. Plaintiffs' Petition asserted that same methodology should be applied to determining the foreseeable future for the Arctic ringed seal, especially in light of new scientific research that has become available since the 2012 Listing Rule.[63]

Next, the Petition discussed the new scientific information about future climate change provided by the IPCC's AR5, including the improved modeling projections from Coupled Intercomparison Project Phase 5 ("CMIP5"). The CMIP5 model projections superseded the CMIP3 modeling projections used in AR4 and incorporated new research findings and different future emissions scenarios called Representative Concentration Pathways or "RCPs." The results of this new modeling show a significant divergence between the four primary RCP scenarios, particularly in high-latitude regions, and indicate that beyond mid-century, the predictions are too uncertain to be reliable.[64]

In addition, the Petition discussed new information demonstrating that Arctic ringed seals are not likely to become in danger of extinction due to future changes in habitat. This included new information regarding the resiliency of the species in response to recent climate-related habitat conditions, including the recent loss of sea-ice and reduced snow levels.[65] The Petition also discussed new studies that show that the future magnitude of ocean acidification depends on a number of variables and is unknown, which undercut

[63] *Id.* at NMFS00089-91 (discussing finding for Pacific walrus, in 12-Month Findings on Petitions to List 25 Species as Endangered or Threatened, 82 Fed. Reg. 46,618, 46,642-44 (Oct. 5, 2017) ("FWS Analysis"), at REF04137, REF04161-63).

[64] Petition, at NMFS00089-93; *see also* AR5, at REF01484-98.

[65] Petition, at NMFS00093-95.

NMFS's reliance on the effects of ocean acidification, a factor considered by NMFS in the Listing Rule.[66]

#### 4. NMFS's 90-Day Finding on the Delisting Petition

In the 90-Day Finding, NMFS concluded that the petition and information readily available in the agency's files did not present new information or analyses that had not been previously considered, and therefore the Petition did not present substantial scientific information indicating that delisting may be warranted.[67] NMFS recognized that the principal threat to ringed seals identified at the time of listing was habitat loss and modification caused by climate change.[68]

The agency acknowledged that the IPCC issued AR5, with new climate projections, after the Listing Rule was published.[69] However, NMFS disagreed that the new projections and other information presented in AR5 constituted new information because AR4 and AR5 both project an upward trend in global warming after mid-century.[70] The agency summarily rejected one of AR5's scenarios (RCP2.6), which showed global temperatures cooling, and it did not otherwise address the differences between AR4 and AR5, including

[66] *Id.* at NMFS00095-96.

[67] 90-Day Finding on a Petition to Delist the Arctic subspecies of Ringed Seal Under the Endangered Species Act, 85 Fed. Reg. 76,018 (Nov. 27, 2020) ("90-Day Finding"), at NMFS00169.

[68] *Id.* at NMFS00172.

[69] *Id.* at NMFS00173 (stating "the climate projections discussed in the AR5 became available after the Arctic ringed seal was listed").

[70] *Id.*

the significant divergence in the long-term results of the CMIP5 modeling in AR5.[71] Further, NMFS failed to credit new biological information presented in the Petition that declines in sea-ice extent and snow cover have not impacted the species' population, indicating the species is more resilient to environmental change than anticipated.[72]

NMFS also determined that FWS's analysis of the foreseeable future in that agency's 12-month finding on the Pacific walrus listing petition was not new information relative to the Arctic ringed seal. The agency explained that the foreseeability of threats to the species and the species' response to those threats is "case-specific."[73] NMFS also explained that it "recognized that the farther into the future the analysis extends, the greater the inherent uncertainty, and [the agency] incorporated that consideration into [its] assessment of the threats and the species' response to the threats," citing the Listing Rule at page 76,723.[74] That page of the Listing Rule contains the same general statement about uncertainty, but does not explain how uncertainty was actually incorporated into the agency's threats analysis.[75] Instead, NMFS explained that it regarded the IPCC's AR4 as representing the best scientific and commercial data and therefore relied on the modeling projections from AR4 for the full 21st century to analyze threats to the ringed seal.[76]

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[71] *Id.*

[72] *See id.* at NMFS00175.

[73] *Id.* at NMFS000173.

[74] *Id.* (citing Listing Rule, at NMFS00046).

[75] Listing Rule, at NMFS00046.

[76] *Id.*

NMFS further noted in the 90-Day Finding that the Pacific walrus has "distinctly different life history and habitat characteristics" as compared to the ringed seal.[77] But NMFS failed to respond to FWS's finding that the *modeling* is too speculative to support that a species will be endangered with extinction from changes in conditions predicted to occur in the latter half of the century.[78]

NMFS concluded by stating that it found that the information presented in the Petition "largely reiterates previous arguments expressed in comments received regarding the proposed listing determination for the Arctic ringed seal that were addressed in the final listing rule."[79] The agency also stated that the "petition does not present substantial new information or new analysis indicating that the scientific and commercial data considered in our listing determination, or the analytic methodology used in the determination, were in error."[80]

## III. JURISDICTION

This case is brought pursuant to the ESA's citizen suit provision, 16 U.S.C. § 1540(g), and the Administrative Procedure Act ("APA"), 5 U.S.C. §§ 701-706. NMFS received written notice of its violations on or about June 28, 2021, consistent with § 1540(g)(2).

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[77] *Id.*

[78] 90-Day Finding, at NMFS00173-74.

[79] *Id.* at NMFS00178.

[80] *Id.*

## IV. STANDARD OF REVIEW

"In the unique context of a case brought under the APA, [] the district court sit[s] as an appellate tribunal to decide as a matter of law [whether] the agency action is supported by the administrative record and is otherwise consistent with the APA standard of review."[81] "[I]t is the Court's job to ensure that the agency's action is 'in accordance with law,' 5 U.S.C. § 706(2)(A), and that the agency has 'examine[d] the relevant data and [has] articulate[d] a satisfactory explanation for its action.'"[82] "Although review of the agency's reasoned decision is deferential, where the agency 'entirely fail[s] to consider an important aspect of the problem' at issue, the Court must set the agency's action aside as 'arbitrary and capricious.'"[83]

## V. ARGUMENT

The Arctic ringed seal was listed in 2012 due to projected declines in sea-ice and snow cover predicted to occur near the end of the 21st century. NMFS erred in issuing the 90-Day Finding because it ignored new information related to the inherent uncertainty in using modeling to make projections out to the year 2100. "The issue before the Court is not whether a reasonable person could accept [the petitioner's] interpretation of the data, but whether the [agency] ha[s] a rational basis for concluding that a reasonable person would not do so."[84] At the 90-day-review stage, NMFS "must either credit [the new

[81] *Buffalo Field II*, 579 F. Supp. 3d at 194 (alterations in original) (cleaned up).

[82] *Id.* (alterations in original) (quoting *Motor Vehicle Mfrs.*, 463 U.S. at 43).

[83] *Id.* (alterations in original) (quoting *Motor Vehicle Mfrs.*, 463 U.S. at 43).

[84] *Id.* at 204 (alterations in original) (cleaned up).

information] or explain why it is 'unreliable, irrelevant, or otherwise unreasonable to credit.'"[85]

NMFS's decision to list the ringed seal depended on projections from modeling that show sea-ice and snow cover will decrease to such an extent by 2100 that the ringed seal, despite its current status, will be facing extinction. These projections were based on the CMIP3 models used by the IPCC for AR4. As explained above, NMFS's status review team recognized that the climate models and their projections of long-term changes in sea-ice and snow cover had significant divergence (i.e., uncertainty) due to the range of emission scenarios that were used by the IPCC at that time, as well as large natural variations and across-model differences.[86] The status review team noted that, for the second half of the 21st century, and especially by 2100, "the choice of the emissions scenario becomes the major source of variation among climate projections and dominates over natural variability and model-to-model differences."[87] At the same time, certain models performed poorly and had to be eliminated, limiting the number of models that could be used to address model variability.[88]

The importance of the long-term model projections cannot be understated. NMFS explained in the Listing Rule that because AR4's climate projections extended through the end of the century (and AR5's model projections, due in 2014, would extend even longer),

[85] *Id.* (cleaned up).

[86] Status Review Report, at REF00063-65.

[87] *Id.* at REF00064.

[88] *Id.* at REF00065-66.

NMFS chose to rely on those models to assess impacts from climate change through 2100, despite knowing that the models are increasingly inaccurate after the first half of the 21st century.[89] For example, the Listing Rule contained a section entitled "Regional Sea Ice and Snow Cover Predictions by Subspecies," in which the agency concluded that sea-ice is "projected to decline throughout this century," and "[b]ased on model projections," that by the end of the century, snow depth in April is forecast to be inadequate to support birth lairs on stable ice in many areas.[90] Similarly, the agency explained that the projected decreases in sea-ice and snow cover by 2100 were expected to impact pup survival.[91] NMFS's ultimate determination for the ringed seal, quoted above, likewise relied on speculative long-term changes in sea-ice and snow cover based on the AR4 models.

The Petition presented new information that conflicts with NMFS's prior reliance on modeling to conclude that it is foreseeable the ringed seal will become endangered in the late 21st century. Thus, the new information and data in the Petition showed that there were "errors discovered in[] the data, model or analytic methodology used in the previous finding," warranting a positive 90-day finding.[92]

NMFS erred in three distinct ways in its 90-Day Finding. First, NMFS applied the wrong legal standard because it failed to credit new information that undercut its original findings that projections of climate change conditions show that the ringed seal will be

[89] Listing Rule, at NMFS00030.

[90] *Id.* at NMFS00031.

[91] *Id.* at NMFS00033.

[92] Revision Regulations, 81 Fed. Reg. at 66,473.

endangered by 2100. Second, new information from AR5 shows that there is too much uncertainty in the projections through 2100 based on the climate modeling to support a finding that the ringed seal will become endangered in the foreseeable future, showing that delisting may be warranted. Third, NMFS erred in failing to provide any analysis as to why this new information from FWS and the IPCC in AR5 on the uncertainty of long-term climate change projections does not support that delisting "may be warranted." Ultimately, NMFS is not entitled to any deference in this case because it failed to offer any reasoned explanation for why it did not credit the new information.[93] Each point is addressed in more detail below.[94]

### A. Vacatur of NMFS's 90-day Finding Is Necessary Because NMFS Applied the Wrong Legal Standard

"At the 90-day stage, the question is not whether the designation *is* warranted, only whether it *may* be."[95] Naturally then, "the standard requiring consideration of whether a 'reasonable person' would conclude that action 'may be warranted' contemplates that where there is disagreement among reasonable scientists, [NMFS] should make the 'may be warranted' finding."[96] "Unless [NMFS] explains why the scientific studies that the

[93] *Buffalo Field II*, 579 F. Supp. 3d at 204-05.

[94] NMFS also announced that it was commencing a status review of the ringed seal under a different ESA provision, 16 U.S.C. § 1553(c)(2). 90-Day Finding, at NMFS00169. Status reviews conducted under that provision differ from determinations on petitions under 16 U.S.C. § 1553(b)(3), and have no deadlines. NMFS's initiation of a status review does not excuse its failure to properly analyze the Petition or allow it to deny the Petition.

[95] *Buffalo Field I*, 289 F. Supp. 3d at 109 (citation omitted).

[96] *Id.* (cleaned up).

petition cites are unreliable, irrelevant, or otherwise unreasonable to credit, the Service must credit the evidence presented" and grant the Petition.[97]

Here, the Petition cited new information from FWS, AR5, and peer-reviewed biological studies that undercut NMFS's conclusion that projections based on climate models show that it is foreseeable that the ringed seal will become endangered by 2100. NMFS's failure to credit this new information constitutes reversible error.

### 1. Failure to Credit New Information from FWS's Analysis

FWS recognized the uncertainty inherent in using modeling to predict climate change conditions out to 100 years in the future as NMFS did here.[98] It explained:

> Such an extended forecast was not sufficiently reliable for the listing determination due to the: (1) Increased uncertainty in the model results (i.e., the confidence intervals associated with temperature and precipitation projections); (2) increasing uncertainty in the magnitude and imminence of the predicted changes; (3) higher level of uncertainty of how the species may respond to any potential changes in its habitat that may result from changes in temperature and precipitation patterns; and (4) uncertainty associated with how society will respond to the predicted change in climate (e.g., take actions that will mediate or accelerate global emissions) that far into the future.[99]

Thus, FWS found long-term climate modeling too speculative to support listing the Bicknell thrush, the Big Blue Springs cave crayfish, and Pacific walrus.[100]

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[97] *Id.* (cleaned up).

[98] FWS Analysis, at REF04147.

[99] *Id.*

[100] *Id.* at REF04147, REF04149, REF04162-63.

As to the Pacific walrus, FWS stated that "beyond 2060 the conclusions concerning the impacts of the effects of climate change on the Pacific walrus population are based on speculation, rather than reliable prediction."[101] It concluded:

> [W]hile the Pacific walrus will experience a future reduction in availability of sea ice, resulting in reduced resiliency and redundancy, we are unable to reliably predict the magnitude of the effect and the behavioral response of the Pacific walrus to this change, and we therefore do not have reliable information showing that the magnitude of this change could be sufficient to put the subspecies in danger of extinction now or in the foreseeable future.[102]

While FWS recognized that "the most significant risk factor looking into the future is the effects of climate change (sea-ice loss)" and that there will be a future decline in sea-ice, just as NMFS did here with the ringed seal, FWS decided that listing the Pacific walrus was not warranted due to the speculative nature of the modeling results.[103] FWS determined: "beyond 2060 the conclusions concerning the impacts of the effects of climate change and other stressors on the Pacific walrus population are based on speculation, rather than reliable prediction."[104]

The Petition highlighted FWS's determination that modeling cannot accurately predict climate conditions, including sea-ice extent, beyond 2060 and, thus, that the models' projections of conditions at the end of the century cannot be used to establish that a species with a large population and extensive habitat will become endangered in the

[101] *Id.* at REF04162.

[102] *Id.* at REF04163.

[103] *Id.* at REF04162-63

[104] *Id.* at REF04162-63.

"foreseeable future."[105] FWS's analysis therefore contradicts NMFS's conclusion in the Listing Rule that climate modeling was sufficiently reliable to predict long-term changes caused by climate change, including loss of sea-ice extent. Consequently, given that "reasonable scientists disagree," delisting of the ringed seal *may* be warranted.[106] Because NMFS failed to credit FWS's analysis regarding the speculative nature of the modeling without explanation,[107] vacatur of the 90-Day Finding is necessary.

**2. Failure to Credit AR5's New Information**

New data from AR5 on the certainty of modeling the effects of climate change through 2100 likewise shows that there were errors in the Listing Rule given that NMFS's finding that the ringed seal is endangered depended on the AR4 climate modeling.

The projections in the Listing Rule were based on the CMIP3 models used by the IPCC for assessing climate change in AR4.[108] NMFS's status review team recognized that the CMIP3 models and their projections of long-term changes in sea-ice and snow cover had substantial variability given the range of greenhouse gas emission scenarios plus large natural variations and across-model differences.[109] Certain models performed so poorly that the status review team culled them, limiting the number of models that could be used

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[105] Petition, at NMFS00089-91.

[106] *Buffalo Field I*, 289 F. Supp. 3d at 109-10; *Ctr. for Biological Diversity v. Kempthorne*, No. CV 07-0038-PHX-MHM, 2008 WL 659822, at *10-12 (D. Ariz. Mar. 6, 2008) (reversing negative 90-day finding where there was internal debate among agency scientists on the petitioned action).

[107] 90-Day Finding, at NMFS00173-74.

[108] *See* Listing Rule, at NMFS00030.

[109] Status Review Report, at REF00063-66.

to address model variability.[110] Additionally, NMFS used only two of the six AR4 emissions scenarios representing a high emissions scenario (A2) and an intermediate emission "business as usual" scenario (A1B) and disregarded the other four scenarios.[111]

The IPCC used a different approach for the AR5 modeling that involved the use of Representative Concentration Pathways ("RCPs"), which were "developed using Integrated Assessment Models ("IAMs") that typically include economic, demographic, energy, and simple climate components."[112] The IPPC described:

> The CMIP5 multi-model experiment . . . presents an unprecedented level of information on which to base assessments of climate variability and change. CMIP5 includes new [Earth System Models] in addition to AOGCMs, new model experiments and more diagnostic output. CMIP5 is much more comprehensive than the preceding CMIP3 multi-model experiment that was available at the time of the IPCC AR4. CMIP5 has more than twice as many models, many more experiments (that also include experiments to address understanding of the responses in the future climate change scenario runs), and nearly $2 \times 10^{15}$ bytes of data (as compared to over $30 \times 10^{12}$ bytes of data in CMIP3). A larger number of forcing agents are treated more completely in the CMIP5 models, with respect to aerosols and land use particularly.[113]

[110] *Id.* at REF00065-66.

[111] Listing Rule, at NMFS00046; *see also* AR4 Synthesis Report, at REF00397-99 (describing hypothetical emissions scenarios). Scenario A2 "describes a very heterogeneous world with high population growth, slow economic development and slow technological change." AR4 Synthesis Report, at REF00397. Scenario A1B "assumes a world of very rapid economic growth, a global population that peaks in mid-century and rapid introduction of new and more efficient technologies." AR4 Synthesis Report, at 397.

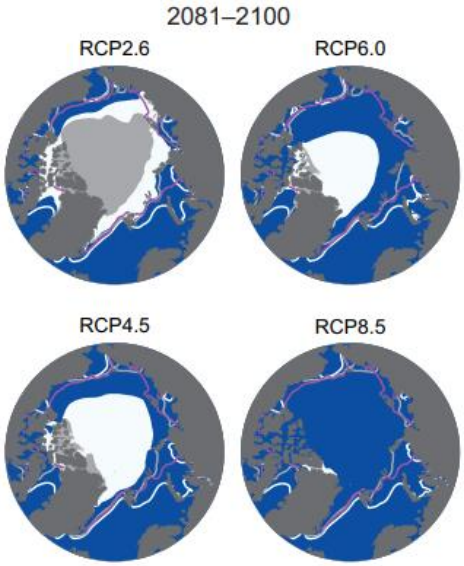
[112] AR5, at REF01484.

[113] *Id.*; *see also id.* at REF02436 (stating the CMIP5 models "presents an unprecedented level of information on which to base projections ").

The IPCC also noted that results from modeling done after AR4 "lend support for weighting/recalibrating the models based on their present-day Arctic sea ice simulations."[114]

The new information in AR5, based on different and more sophisticated modeling, undercuts NMFS's conclusion that the AR4 models provided sufficient certainty regarding predicted threats to the ringed seal from projections of changes in sea-ice extent and snow cover in the latter half of the 21st century. NMFS's refusal to credit the new projections from AR5's models requires vacatur.

AR5's models indicate that in three of the four scenarios used for the projections of sea-ice extent, there will be significant amounts of sea-ice from 2081 to 2100.[115] In the graphic reproduced below, the multi-model mean for sea-ice extent is shown in white and the average historically observed sea-ice extent from 1986-2005 is shown with a pink line.




[114] *Id.* at REF02494.

[115] *Id.* at REF01497.

This graphic indicates that significant sea-ice is projected to exist at the end of the century in three of the four scenarios.

That a species' range has contracted or, as in this case, is projected to contract over the next 80 years, does not mean that the species is threatened with extinction. *Defenders of Wildlife v. Norton*, for example, involved a challenge to FWS's decision to not list the flat-tailed horned lizard based on habitat loss.[116] The plaintiffs argued that the projected loss of 82% of the lizard's habitat constituted the loss of a substantial portion of the species' range, supporting listing. The court rejected that argument, explaining: "A species with an exceptionally large historical range may continue to enjoy healthy population levels despite the loss of a substantial amount of suitable habitat."[117] The New Mexico district court, in rejecting a challenge to FWS's determination that a species is not eligible for listing, similarly explained:

> [I]t is possible to conclude that 99% of a species' historic range may be lost, yet the species will still be thriving in the 1% that is left, in sufficient numbers and sufficient health, and will still be sufficiently protected from natural and manmade threats, that no listing is necessary in order to preserve the species.[118]

Here, AR5's projections on sea-ice extent from 2081 to 2100 show that there is reasonable scientific debate on whether there will be enough suitable habitat for the ringed seal to

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[116] *Defenders of Wildlife v. Norton*, 258 F.3d 1136, 1138-44 (9th Cir. 2001).

[117] *Id.* at 1143.

[118] *Ctr. for Biological Diversity v. Norton*, 411 F. Supp. 2d 1271, 1280 (D.N.M. 2005) (vacated pursuant to settlement).

maintain sufficient numbers through 2100. NMFS's failure to credit this information from AR5 requires vacatur of the 90-Day Finding.

Further, AR5 explains that due to the inherent unreliability of the modeling, "[t]he use of *multiple scenarios and models* ha[s] become a *standard choice* in order to assess and characterize them, thus allowing [the IPCC] to describe a wide range of *possible* future evolutions of the Earth's climate."[119] Yet NMFS only relied on, at most, two "'non-mitigated' scenarios" in determining that the ringed seal was threatened from projected decreases in sea-ice extent and snow cover.[120] In fact, for some findings in the Status Review, NMFS used *a single* scenario and only six models, including projections for Arctic sea-ice extent and snow cover.[121] NMFS therefore erred by failing to credit AR5's new finding that "multiple scenarios" should be included in making projections to properly account for uncertainty.[122]

Indeed, AR5's projections reveal that NMFS's decision to eliminate emissions scenarios and climate models was a fatal flaw that artificially narrowed the variability in its projections of sea-ice extent. The graphics below related to projected sea-ice extent through 2100 are reproduced from NMFS's 2010 Status Review (left) and AR5 (right):[123]

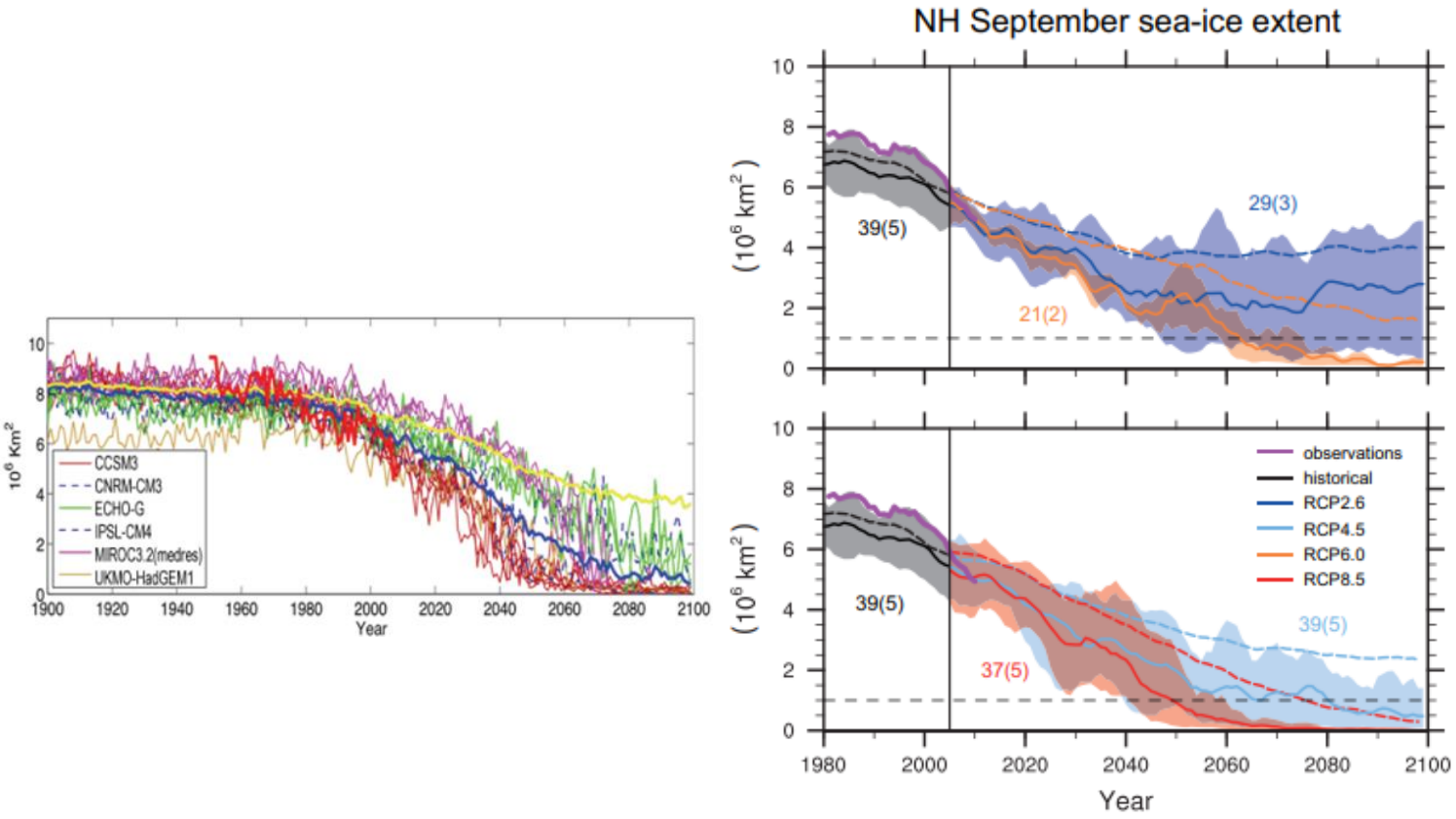
[119] AR5, at REF02442 (emphasis added).

[120] Listing Rule, at NMFS00035.

[121] *Id.* at NMFS00035, NMFS00045-46; Status Review Report, at REF00065-66.

[122] *Buffalo Field II*, 579 F. Supp. 3d at 200-01.

[123] Status Review Report, at REF01497; AR5, at REF01497.




NMFS's Status Review relied on a selection of six individual model runs from AR4, based on a single scenario, that show sea-ice extent will vary between about 0 and 2.0 million square kilometers (about 770,000 square miles) by 2050.[124] In contrast, for AR5, the IPCC modeled four different scenarios.[125] Further, in developing projections in AR5, the model was run 29 times for RCP2.6, 39 times for RCP4.5, 21 times for RCP6.0, and 37 times for RCP8.5, totaling 126 runs, 21 times the amount of runs as NMFS's Status Review.[126] After running the four scenarios numerous times, the AR5 modeling shows sea-ice extent ranging

[124] Status Review Report, at REF00065-66.

[125] AR5, at REF01497.

[126] *Id.*

from 0 to more than 4.0 million square kilometers (over 1.5 million square miles)—double NMFS's projected range of sea-ice extent based on the selected modeling from AR4.[127]

At bottom, AR5 makes clear that the variability of sea-ice extent in the second half of this century dramatically increases when all the data is properly accounted for by running multiple scenarios numerous times, as AR5 counsels.[128] NMFS's failure to credit this information reveals that NMFS did not apply the correct standard for 90-day reviews.

Critically, NMFS expressly acknowledged that unlike the AR4 models that had a "trend [that] is clear and unidirectional" for global temperature rise, the AR5 models are not unidirectional because they include a scenario where global temperatures trend downward (RCP2.6).[129] That scenario likewise showed a corresponding increase in projected sea-ice extent by 2100 in contrast to NMFS's 2012 findings based on the AR4 modeling.[130] Yet NMFS flatly rejected the RCP2.6 scenario without explanation, noting that it has "no equivalent in the AR4 scenarios."[131] Thus, even setting aside how the AR5 modeling highlights the inherent uncertainty in the long-term projections, NMFS still committed reversible error by again failing to "credit [] supporting evidence" without any

[127] *Id.*

[128] *Id.* at REF02441-42.

[129] 90-Day Finding, at NMFS00173.

[130] AR5, at REF01497.

[131] 90-Day Finding, at NMFS00173.

explanation, especially given AR5's conclusion that a wide variety of scenarios and models must be used in making projections from the modeling.[132]

NMFS also erred by failing to credit new information from AR5 regarding snow-cover projections. The AR5 models show that snow cover could decrease between 3% and 32%.[133] For three of the four RCPs, snow cover was projected to decrease only up to about 10% (RCP6.0) and as little as 3% (RCP2.6), well below the range of 9% to 17% from the AR4 projections.[134] NMFS had to credit the AR5 models' much lower projections for long-term decreases in snow cover, but again, NMFS improperly ignored the new evidence and instead asserted in conclusory fashion that the new information from AR5 "does not support the assertion in the petition that the 2012 listing decision overestimated future declines in snow depths on Arctic sea-ice."[135] NMFS's refusal to credit AR5's new projections again violates the standard for petition review.[136]

At bottom, NMFS repeatedly ignored new data from AR5 that undercuts NMFS's analysis in listing the ringed seal. Vacatur is necessary.

### 3. Failure to Credit New Biological Information

The Petition highlighted new biological information, including peer-reviewed studies, showing that "observed changes in sea ice extent and duration have not resulted in

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[132] *Buffalo Field II*, 579 F. Supp. 3d at 200-01.

[133] AR5, at REF01497-98.

[134] *Id.*; IPCC Climate Change 2007: The Physical Science Basis (2007) ("AR4"), at REF04947.

[135] 90-Day Finding, at NMFS00174.

[136] *Buffalo Field II*, 579 F. Supp. 3d at 200-01.

detectable corresponding reductions in ringed seal population size or effects to ringed seal population health, contradicting the assumptions made in the listing decision."[137] New population data indicate that the species' population continues to number in the millions despite rapid sea-loss and lengthening of snow-melt season, indicating that ringed seals have greater resilience to environmental changes than previously assumed.[138] Yet NMFS disregarded this new data and failed to explain how it did not undercut its analysis that projected sea-ice and snow-cover declines will result in population reductions that will endanger the species by 2100.[139] Nor did it evaluate how this new information affects whether "the species' response to those [purported] threats" is foreseeable, as is required.[140] The new biological information undercuts NMFS's conclusion that projected sea-ice and snow-cover reductions will necessarily result in population declines that will endanger the species, especially in light of the uncertainty in the projections themselves discussed above.

In conclusion, NMFS erred by failing to credit new information that undercuts NMFS's prior analysis and supports that delisting may be warranted.[141] Ultimately, if NMFS is going to rely on the IPCC's models as the "best available science," then it has to actually use them—not pick and choose what models support its conclusions and ignore information that does not. If NMFS is allowed to ignore FWS's new findings, AR5's more

[137] Petition, at NMFS00094 (cleaned up).

[138] *Id.* at NMFS00093-95.

[139] 90-Day Finding, at NMFS00175-76.

[140] Listing Regulations, 84 Fed. Reg. at 45,026.

[141] *Buffalo Field II*, 579 F. Supp. 3d at 200-01.

sophisticated modeling and revised climate change projections, and new biological data, then its implementation of the ESA will be left to the whims of agency officials and their policy objectives, gutting the "best available science" standard.[142]

### B. New Information from AR5 Reveals that the Modeling NMFS Initially Relied on Is Too Speculative to Support that It Is Foreseeable that the Ringed Seal Will Become Endangered by 2100 as a Result of Projected Decreases in Arctic Sea-Ice Extent and Snow Cover

The new information from AR5 shows that the climate modeling NMFS relied on in the Listing Rule is too speculative to support a finding that the Ringed Seal is likely to become an endangered species by the end of this century. Therefore, the "may be warranted" standard is met, and NMFS should be directed to issue a positive 90-day finding.

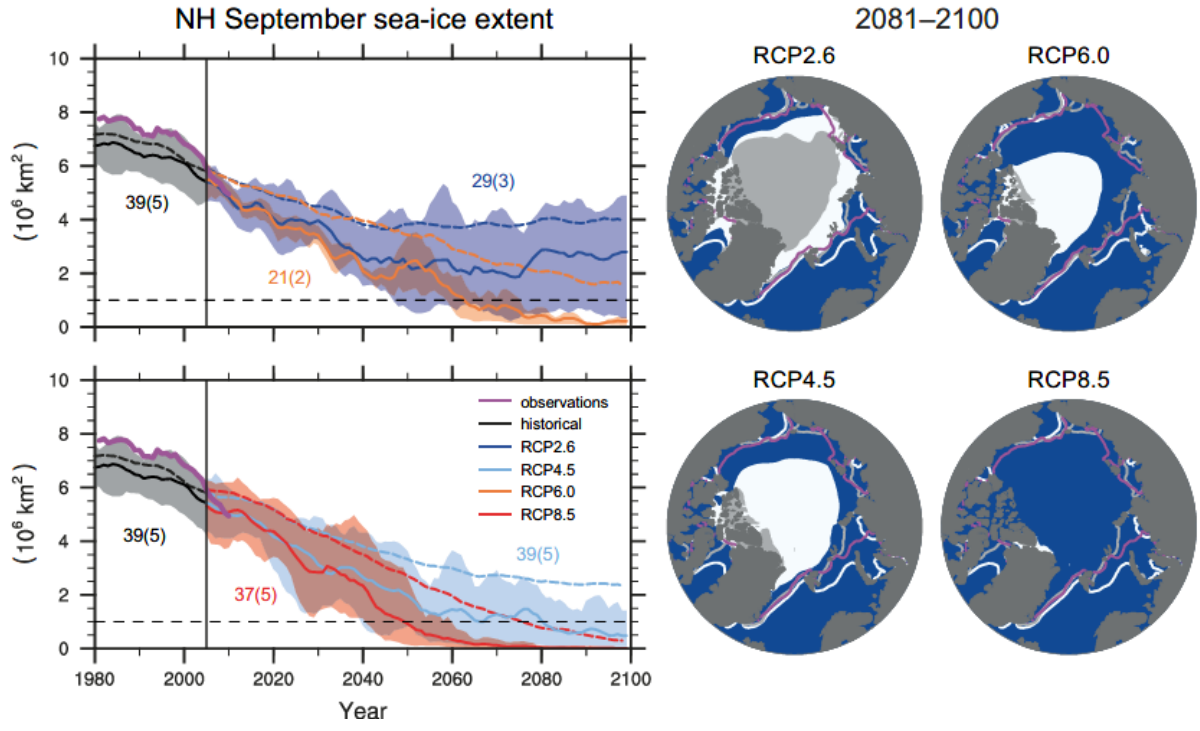
AR5 reveals that climate modeling cannot be reliably used to project the impact that climate change may have on habitat conditions many years in the future, including changes to sea-ice extent and snow cover and how the species will be affected by these changes. As discussed, the IPCC used new and very different approaches in AR5 to model future climate change:

> The CMIP5 multi-model experiment . . . presents an unprecedented level of information on which to base assessments of climate variability and change. CMIP5 includes new [Earth System Models] in addition to AOGCMs, new model experiments and more diagnostic output. CMIP5 is much more comprehensive than the preceding CMIP3 multi-model experiment that was available at the time of the IPCC AR4. CMIP5 has more than twice as many models, many more experiments (that also include experiments to address understanding of the responses in the future climate change scenario runs), and nearly $2 \times 10^{15}$ bytes of data (as compared to over $30 \times 10^{12}$ bytes of data in CMIP3). A larger number of forcing agents are treated more completely in the CMIP5 models, with respect to aerosols and land use particularly.[143]

[142] *See Bennett*, 520 U.S. at 176-77.
[143] AR5, at REF01484.

AR5 further explains: CMIP5 models "presents an unprecedented level of information on which to base projections including new Earth System Models with a more complete representation of forcings, new Representative Concentration Pathways (RCP) scenarios and more output available for analysis."[144]

With regard to projected changes in the Arctic region, the following graphics from AR5 depict projected sea-ice in the Arctic Basin based on the four Representative Concentration Pathways used in the AR5 modeling.[145] The multi-model mean extent of sea-ice is shown in white with the observed historical sea-ice extent averaged over 1986 to 2005 shown with a purple line.




[144] *Id.* at REF02436.

[145] *Id.* at REF01497.

Elsewhere, AR5 explains:

> The reduction in sea ice extent between the time periods 1986-2005 and 2081-2100 for the CMIP5 multi-model average ranges from 8% for RCP2.6 to 34% for RCP8.5 in February and from 43% for RCP2.6 to 94% for RCP8.5 in September. *Medium confidence* is attached to these values as projections of sea ice extent decline in the real world due to errors in the simulation of present-day sea ice extent . . . and because of the large spread of model responses.[146]

Thus, while sea-ice cover in the Arctic region is predicted to continue shrinking, the average predicted decrease in sea-ice extent varies widely and lacks certainty, especially in contrast to what NMFS considered when listing the species.

Critically, however, the projected change in sea-ice extent is too uncertain to support a finding that the ringed seal will become threatened with extinction because, "as in the case of [AR4's] CMIP3 [models], the inter-model spread is *considerable*."[147] "A complete and detailed explanation for what controls the range of Arctic sea ice responses in models over the 21st century remains elusive . . . ."[148] AR5 further concedes that "the optimal approach for constraining sea ice projections from climate models is unclear."[149] Ultimately, the only thing that becomes more certain with time is that as more data and information is brought into the models, the more the projected changes in future conditions vary.[150]

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[146] *Id.* at REF02492.

[147] *Id.* (emphasis added).

[148] *Id.* at REF02492-93

[149] *Id.* at REF02494.

[150] *See id.* at REF01545-46 ("FAQ 1.1 | If Understanding of the Climate System Has Increased, Why Hasn't the Range of Temperature Projections Been Reduced?").

In fact, AR5 explains that while researchers use a variety of methods in projecting sea-ice extent to purportedly increase the certainty of models, they nonetheless "lead to different timings" for the "near disappearance of September Arctic sea ice."[151] NMFS expressly relied on the SRES A1B scenario from AR4 in concluding that it was foreseeable that sea-ice extent would be reduced enough by 2100 to threaten the ringed seal with extinction.[152] Yet AR5 makes clear that variability "remains wide" for that scenario, making it impossible to determine with certainty whether it is foreseeable that sea-ice extent will decrease enough by 2100 to threaten the ringed seal with extinction.[153]

The AR5 also explains that while it is very likely that snow cover in the Northern Hemisphere will be reduced as global temperatures rise over the coming century, the projected changes vary widely from a decrease of 3% to 10% under RCP2.6 to 18% to 32% under RCP8.5.[154] AR5 likewise describes that the confidence in those projections is only medium because snow processes in global climate models are "strongly simplified."[155] At bottom, AR5 explains, long-term changes in snow cover are difficult to accurately predict and therefore cannot be reasonably foreseen.

AR5 explains, in short, that "[t]here are various alternative and equally plausible numerical representations, solutions and approximations for modelling the climate system,

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[151] *Id.* at REF02495.

[152] Status Review Report, at REF00065-66; Listing Rule, at 00046.

[153] AR5, at REF02495.

[154] *Id.* at REF01497, 02497.

[155] *Id.* at REF02497.

given the limitations in computing and observations. This diversity is considered a healthy aspect of the climate modelling community, and results *in a range of plausible climate change projections* at global and regional scales."[156] Moreover, as discussed above, new biological data indicates that there are millions of ringed seals and that it is uncertain how they will respond to sea-ice and snow-cover reductions, making it impossible to project whether changes in climate will endanger the species by century's end. Thus, at the very least, there is reasonable scientific debate on the reliability of the climate models to support delisting the ringed seal.

NMFS has described the IPCC's modeling to be the best available science.[157] Consequently, NMFS should have issued a positive 90-day finding since the best available science by NMFS's own account—the IPCC's modeling—reveals that there is simply too much uncertainty in the modeling to say that it is foreseeable that the ringed seal will be endangered by the end of the 21st century.

Given AR5's new information and refined analysis, NMFS should have issued a positive 90-day finding. While the usual course is to vacate and remand, here it is clear that "sufficient basis exists to proceed to the next stage of the ESA process" because the best available science that NMFS itself previously relied on undercuts its prior analysis in the Listing Rule, showing that reversal with instructions to issue a positive 90-day finding is warranted. [158]

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[156] *Id.* at REF02441 (emphasis added).

[157] *See Alaska Oil & Gas Ass'n*, 840 F.3d at 679-80.

[158] *See Buffalo Field II*, 579 F. Supp. 3d at 206.

### C. NMFS Erred by Ignoring AR5 in Issuing Its 90-Day Finding

Finally, independent of NMFS's failure to apply the proper standard for a 90-day petition review, NMFS also violated the Administrative Procedure Act because the agency "ignored 'an important aspect of the problem' at issue and failed to 'articulate . . . a rational connection between the facts found and the choice made"' by refusing to provide any analysis of whether FWS's analysis of the reliability of climate modeling or the new information presented in AR5 shows that the petitioned action may be warranted.[159]

First, NMFS committed error by failing to squarely address FWS's determination that modeling is too speculative to be used to predict whether a species will become endangered due to climate change by 2100. Second, NMFS's analysis of AR5 was limited to a single sentence, in which NMFS stated that AR5 and AR4 support the same general conclusions regarding the trend of global climate projections while simultaneously discounting that one of AR5's scenarios contradicts that trend.[160] NMFS further ignored the discussion in AR5 about the uncertainty of predicting long-term climate change, including the acknowledgement that the accuracy of climate projections depends on using a range of scenarios and models, while expressly rejecting one of AR5's scenarios.

Accordingly, vacatur is necessary because NMFS erred by refusing to explain why the FWS's analysis and AR5 are irrelevant or otherwise does not show that delisting "may be warranted."[161]

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[159] *Id.* at 201 (alterations in original) (quoting *Motor Vehicle Mfrs.*, 463 U.S. at 43).

[160] 90-Day Finding, at NMFS00173.

[161] *Buffalo Field II*, 579 F. Supp. 3d at 201.

## VI. CONCLUSION AND RELIEF REQUESTED

The extensive new population and biological data that the State has been collecting since listing does not show a population in decline. NMFS should not be allowed to disregard this new information in a blind effort to continue affording federal protections to a species that simply does not need it. Further, allowing NMFS to rely on uncertain modeling that speculates impacts on the ringed seal in 60 to 75 years is not what Congress envisioned when it demanded listing decisions be based on the best available science. In fact, under NMFS's analysis, any currently healthy species could be potentially listed simply based on a changing climate model. NMFS' use of speculative modeling is simply inconsistent with the ESA.

Ultimately, NMFS erred in issuing the Negative 90-Day Finding because it ignored information from FWS and the IPCC's AR5 that undercut its reliance on climate modeling from AR4 to support its finding that it is foreseeable that the Arctic ringed seal will become endangered by 2100. Indeed, NMFS itself described the IPCC's climate modeling as the best available science in listing the ringed seal, and it cannot ignore IPCC's more recent findings on modeling in AR5 to avoid a result it would not prefer. Vacatur with instructions to issue a positive 90-day finding is therefore warranted because the "may be warranted" standard has been met. Alternatively, at the very least, vacatur is necessary based on NMFS's failure to apply the correct legal standard by crediting more recent and better scientific information and data regarding the Arctic ringed seal, requiring vacatur with instructions to the agency to issue a new 90-day finding.

RESPECTFULLY SUBMITTED this 9th day of June, 2023.

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