FOR PUBLICATION

UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

ALASKA OIL AND GAS ASSOCIATION; AMERICAN PETROLEUM INSTITUTE; STATE OF ALASKA; NORTH SLOPE BOROUGH; INUPIAT COMMUNITY OF THE ARCTIC SLOPE; NORTHWEST ARCTIC BOROUGH; ARCTIC SLOPE REGIONAL CORPORATION; NANA REGIONAL CORPORATION, INC., *Plaintiffs-Appellees*, v. PENNY PRITZKER, U.S. Secretary of Commerce; NATIONAL MARINE FISHERIES SERVICE; NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION; KATHRYN D. SULLIVAN, in her official capacity as the Acting Under Secretary of Commerce for Oceans and Atmosphere and the Acting Administrator, National Oceanic and Atmospheric Administration; SAMUEL D. RAUCH, III, in his official capacity as the Acting Assistant Administrator for	No. 14-35806 D.C. No. 4:13-cv-00018-RRB

Fisheries, National Oceanic and Atmospheric Administration,
Defendants-Appellants.

ALASKA OIL AND GAS ASSOCIATION; AMERICAN PETROLEUM INSTITUTE; STATE OF ALASKA; NORTH SLOPE BOROUGH; INUPIAT COMMUNITY OF THE ARCTIC SLOPE; NORTHWEST ARCTIC BOROUGH; ARCTIC SLOPE REGIONAL CORPORATION; NANA REGIONAL CORPORATION, INC.,
Plaintiffs-Appellees,

v.

PENNY PRITZKER, U.S. Secretary of Commerce; NATIONAL MARINE FISHERIES SERVICE; NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION; KATHRYN D. SULLIVAN, in her official capacity as the Acting Under Secretary of Commerce for Oceans and Atmosphere and the Acting Administrator, National Oceanic and Atmospheric Administration; SAMUEL D. RAUCH, III, in his official capacity as the Acting

No. 14-35811

D.C. No.
4:13-cv-00018-RRB

OPINION

Assistant Administrator for Fisheries, National Oceanic and Atmospheric Administration,
Defendants,

and

CENTER FOR BIOLOGICAL DIVERSITY,
Intervenor-Defendant-Appellant.

Appeal from the United States District Court
for the District of Alaska
Ralph R. Beistline, District Judge, Presiding

Argued and Submitted August 4, 2016
Anchorage, Alaska

Filed October 24, 2016

Before: Raymond C. Fisher, Richard A. Paez and Andrew D. Hurwitz, Circuit Judges.

Opinion by Judge Paez

SUMMARY*

Environmental Law

The panel reversed the district court's summary judgment in favor of plaintiffs in their action challenging federal officials' listing decision under the Endangered Species Act, concerning certain "sea ice seal" species; and held that the National Marine Fisheries Service's ("NMFS") listing decision was reasonable.

The NMFS concluded that the Okhotsk and Beringia distinct population segments of the Pacific bearded seal subspecies were likely to become endangered within the foreseeable future. NMFS used climate projections to determine that the loss of sea ice over shallow waters in the Arctic would leave the Pacific bearded seal subspecies endangered by the year 2095. Plaintiffs filed lawsuits challenging the listing decision under the ESA's citizen suit provision and the Administrative Procedure Act.

The panel held that in light of the NMFS's robust rulemaking process, and pursuant to a highly deferential standard of review, the NMFS's final rule listing the Beringia distinct population segment as threatened was not arbitrary or capricious, and its listing was supported by substantial evidence. Specifically, the panel held that the NMFS did not act arbitrarily or capriciously in concluding that the effects of global climate change on sea ice would endanger the Beringia distinct population segment in the foreseeable future. The

* This summary constitutes no part of the opinion of the court. It has been prepared by court staff for the convenience of the reader.

panel further held that the administrative record demonstrated that NMFS provided a reasonable and evidence-based justification for its mid-century and end-of-century sea ice projections.

The panel held that NMFS clearly fulfilled its procedural and substantive obligations under Section 4(i) of the Endangered Species Act, 16 U.S.C. § 1533(i), to provide the State of Alaska with a written justification.

COUNSEL

Robert Parke Stockman (argued), Meredith L. Flax, Mary E. Hollingsworth, and Katherine W. Hazard, Attorneys; John C. Cruzen, Assistant Attorney General; Environment & Natural Resources Division, United States Department of Justice, Washington, D.C.; Demian Schane, Office of the General Counsel, United States Department of Commerce, Juneau, Alaska; for Defendants-Appellants.

Kristen Monsell (argued), Emily Jeffers, and Miyoko Sakashita, Oakland, California; Rebecca Noblin, Anchorage, Alaska; as and for Intervenor-Defendant-Appellant.

Jeffrey W. Leppo (argued) and Ryan P. Steen, Stoel Rives LLP, Seattle, Washington, for Plaintiffs-Appellees Alaska Oil and Gas Association, and American Petroleum Institute.

Bradley E. Meyen, Senior Assistant Attorney General, Alaska Department of Law, Anchorage, Alaska; Murray D. Feldman, Holland & Hart LLP, Boise, Idaho; Christina F. Gomez, Holland & Hart LLP, Denver, Colorado; for Plaintiff-Appellee State of Alaska.

Tyson C. Kade (argued), Van Ness Feldman LLP, Washington, D.C.; Matthew A. Love, Van Ness Feldman LLP, Seattle, Washington; for Plaintiffs-Appellees North Slope Borough, Inupiat Community of the Arctic Slope, Northwest Arctic Borough, Arctic Slope Regional Corporation, and NANA Regional Corporation, Inc.

OPINION

PAEZ, Circuit Judge:

The National Marine Fisheries Service ("NMFS") used climate projections to determine that the loss of sea ice over shallow waters in the Arctic would leave the Pacific bearded seal subspecies (*Erignathus barbatus nauticus*) endangered by the year 2095. This case turns on one issue: When NMFS determines that a species that is not presently endangered will lose its habitat due to climate change by the end of the century, may NMFS list that species as threatened under the Endangered Species Act? The district court answered in the negative, ruling that NMFS's listing decision was arbitrary and capricious. We hold that on the basis of the administrative record, NMFS's listing decision is reasonable. Accordingly, we reverse the district court's grant of summary judgment in favor of Plaintiffs.

I.

In 2008, the Center for Biological Diversity ("CBD") filed a petition requesting that the Secretary of Commerce list three "sea ice seal" species as endangered or threatened under the Endangered Species Act ("ESA" or "the Act"), 16 U.S.C. §§ 1531–44. *See* 16 U.S.C. § 1533(b)(1)(3) (citing 5 U.S.C.

§ 553(e)) (relating to the process for consideration of a petition for rulemaking); Final Listing Rule: Threatened Status for the Beringia & Okhotsk Distinct Population Segments of the *Erignathus barbatus nauticus* Subspecies of the Bearded Seal, 77 Fed. Reg. 76,740 (Dec. 28, 2012) ("Listing Rule"). After a lengthy administrative process that included two rounds of peer review, several rounds of public notice and comment, and public hearings, NMFS concluded that the Okhotsk and Beringia distinct population segments ("DPS") of the Pacific bearded seal subspecies (*Erignathus barbatus nauticus*) were "likely to become . . . endangered species within the foreseeable future throughout . . . a significant portion of [their] range." 16 U.S.C. § 1532(20); Listing Rule, 77 Fed. Reg. at 76,740.

Plaintiffs Alaska Oil and Gas Association ("AOGA"), the State of Alaska, and North Slope Borough (collectively, "Plaintiffs") filed separate lawsuits challenging the listing decision under the ESA's citizen suit provision, 16 U.S.C. § 1540(g), and the Administrative Procedure Act ("APA"), 5 U.S.C. § 706.[1] Plaintiffs alleged, *inter alia*, that the listing decision was not based on the "best scientific and commercial data available" in violation of 16 U.S.C. § 1533(b)(1)(A); the population of bearded seals was plentiful; a lack of reliable population data made it impossible to determine an extinction threshold; NMFS's use of predictive climate projections beyond 2050 were speculative; NMFS had unreasonably

[1] The American Petroleum Institute was added as a plaintiff in AOGA's amended complaint; the Inupiat Community of the Arctic Slope, Northwest Arctic Borough, Arctic Slope Regional Corporation, and NANA Regional Corporation were added as plaintiffs in the North Slope Borough's amended complaint. The district court consolidated all the cases and granted CBD leave to intervene as a defendant.

"changed tack" from its previous Arctic sea-ice listing decisions; and NMFS had failed to demonstrate a causal connection between the loss of sea ice and the impact of that loss to the Okhotsk and Beringia DPS's viability. In addition, the State of Alaska alleged that NMFS failed to adequately respond to its public comments and failed to comply with the ESA's state cooperation provisions. *See id.* § 1533(i); 50 C.F.R. § 424.18(c).

The district court denied relief with respect to the Okhotsk DPS for lack of Article III standing. *Alaska Oil & Gas Ass'n v. Pritzker*, No. 4:13-cv-18-RRB, 2014 WL 3726121, at *3–4 (D. Alaska July 25, 2014) ("Pritzker"). The district court, however, granted summary judgment to Plaintiffs on their challenge to NMFS's decision to list the Beringia DPS as a threatened species. The court concluded that NMFS's decision was arbitrary and capricious because NMFS's long-term climate projections were volatile and the agency lacked data on the bearded seal's adaptability and population trends, including "a specified time" at which the seal would reach an extinction threshold. *Id.* The district court also concluded that the ESA required NMFS to provide Alaska with a separate written justification for rejecting the State's comments and granted summary judgment to Alaska on that claim. *Id.* at *10 (citing *Alaska Oil & Gas Ass'n v. Salazar*, 916 F. Supp. 2d 974, 1003 (D. Alaska 2013), *rev'd sub nom.*, *Alaska Oil & Gas Ass'n v. Jewell*, 815 F.3d 544 (9th Cir. 2016) ("Jewell")). The district court vacated the Listing Rule, explaining that NMFS's attempt to predict the bearded seal's viability beyond 50 years was "too speculative and remote to support a determination that the bearded seal is in danger of becoming extinct." *Id.* at *15.

NMFS and CBD timely appealed. As we explain below, NMFS's decision to list the Beringia DPS as threatened was not arbitrary, capricious, or otherwise in contravention of applicable law. Accordingly, we reverse the district court's grant of summary judgment in favor of Plaintiffs.

II.

We review de novo the district court's grant of summary judgment to determine whether NMFS's ESA listing decision was "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." 5 U.S.C. § 706(2); *Jewell*, 815 F.3d at 554. Our review is "deferential and narrow," requiring a "high threshold for setting aside agency action" following public notice and comment. *Id*. (internal quotation marks omitted). We presume an agency's action is valid, and we will affirm that action "so long as the agency 'considered the relevant factors and articulated a rational connection between the facts found and the choices made.'" *Id.* (quoting *Nw. Ecosys. All. v. U.S. Fish & Wildlife Serv.*, 475 F.3d 1136, 1140 (9th Cir. 2007)).

III.

In October 2009, NMFS established a Biological Review Team of eight marine mammal biologists, a fishery biologist, a marine chemist, and a climate scientist to review the status of the "best scientific and commercial data available" regarding bearded seals.[2] Listing Rule, 77 Fed. Reg. at 76,740. NMFS solicited four scientists to conduct

[2] The district court upheld the agency's rule listing the Okhotsk DPS, a ruling not contested on appeal. *Pritzker*, 2014 WL 3726121, at *3–4. Accordingly, we limit our review to the Beringia DPS listing.

independent peer reviews of the Review Team's report. *Id.* at 76,740 & 76,750. Based on the Review Team's assessment and the peer reviewers' comments, NMFS published a proposed rule listing the Beringia and Okhotsk bearded seal DPSs as threatened under the ESA. *Id.*; *see also* Proposed Rule, 75 Fed. Reg. 77,496 (Dec. 10, 2010).

The status and peer review reports found that the bearded seal (*Erignathus barbatus*) lives throughout the Arctic and Northern Atlantic Oceans, including in the Chukchi, Beaufort, and Bering Seas; Sea of Okhotsk; Sea of Japan; and waters of Arctic Canada (Hudson and Baffin Bays), Svalbard (Norway), and Russia. Because bearded seals are widespread, have low population densities, and spend significant time under water, it is difficult to obtain a reliable estimate of their current population. Listing Rule, 77 Fed. Reg. at 76,742. The bearded seal is commonly divided into two subspecies[3]—*E. b. barbatus*, which primarily inhabits the Atlantic, and *E. b. nauticus*, which inhabits the Pacific. Noting that there were "regions of intergrading" between the Atlantic and Pacific subspecies, NMFS identified two distinct Pacific population segments. Proposed Rule, 75 Fed. Reg. at 77,499–501. One group lived exclusively in the Sea of Okhotsk (the Okhotsk DPS), and the remaining seals were found throughout the Bering and Chukchi Seas (the Beringia

[3] The ESA defines a species as "any subspecies of . . . wildlife . . . , and any distinct population segment of any species of . . . wildlife which interbreeds when mature." 16 U.S.C. § 1532(16). The Act does not define "distinct population segment." NMFS's policy, however, provides guidance on the factors the agency must consider before determining if a population is a distinct segment. *See Nw. Ecosys. All.*, 475 F.3d at 1138, 1141–44 (discussing the distinct population segment policy and the level of deference afforded to it).

DPS), with very little mixing between the two groups. *Id.* at 77,500.

The review concluded that bearded seals generally prefer to hunt organisms found on the ocean floor. As a result, the seals prefer to congregate where non-contiguous sea ice floes appear over shallow water between 50 to 200 meters deep, and the seals avoid "unbroken, heavy, drifting ice or large areas of multi-year ice" located over deeper waters. *Id*. at 77,498. The seals use ice floes to give birth (whelp) and to nurse their pups; to allow mothers close access to food sources while nursing; to enable their pups to gain experience with diving, swimming, and hunting away from their predators; to provide a location for males to attempt to attract females; and to provide a platform where male seals can rest while molting. Listing Rule, 77 Fed. Reg. at 76,742–44. Year-round, bearded seals require access to shallow waters, where the seals have access to "more productive" sea floors with a higher availability of food.

Using observational and predictive data from the Intergovernmental Panel on Climate Change's ("IPCC") Fourth Assessment Report, NMFS used six climate models to determine when the Beringia DPS's sea ice habitat would degrade to such an extent that it would render the Beringia DPS endangered, and it made available for public review its methodology and data. Proposed Rule, 75 Fed. Reg. at 77,497. All independent peer reviewers agreed that the Beringia DPS's continued viability depended on the availability of sea ice in the Bering and Barents Seas during crucial life stages.

After considering thousands of comments to the proposed rule, NMFS extended the review period and sought additional

independent peer reviews of the sections of the status review report that generated the greatest disagreement among peer reviewers—the timing and magnitude of climate change effects on the availability of sea ice in the Bering Sea. Listing Rule, 77 Fed. Reg. at 76,741, 76,750–51. NMFS additionally updated its climate predictions to include studies published after the Proposed Listing Rule. *Id.* at 76,741 & 76,751. NMFS also held public hearings in Anchorage, Barrow, and Nome to solicit comments. *Id.* at 76,750.

NMFS determined that lack of access to non-continuous sea ice in shallow waters would require bearded seals to make significant adaptations to survive. *Id.* at 76,744. It reasoned that lack of access to sea ice over shallow waters likely would encourage seals in the Beringia DPS to whelp and nurse on shore, increasing their risk of exposure to their primary predators—polar bears and walruses. *Id.* at 76,742. Because lack of sea ice in shallow water would require seals to forage in deeper waters that lacked the ocean floor "productivity" of shallow waters, NMFS concluded that as seals moved to deeper waters, they faced a greater risk of being unable to meet their subsistence needs. *Id.* And although bearded seals did not require year-round access to sea ice floes in shallow waters, most observational studies and peer reviewers opined that lack of access to sea ice during periods of significant life functions (birthing, nursing, hunting/foraging, molting) would likely have a negative effect on the Beringia DPS. *Id.*

Having concluded that the availability of sea ice in shallow water was crucial to the Beringia DPS's viability, NMFS evaluated several climate models to determine the magnitude and timing of climate change's impact on the availability of sea ice in areas inhabited by the Beringia DPS. *Id.* at 76,744. Those projections indicated that by 2095, sea

ice in several regions where the Beringia DPS whelps will have disappeared entirely during the mating, nursing, and birthing season (April through June). *Id.* NMFS also concluded that any periodic "gains" in sea ice as a result of climate change were not really gains for the Beringia DPS. Instead, independent peer reviewers cautioned that "gains" in sea ice were illusory—seals would simply be able to access areas they already used in earlier months, but not during the times when critical life activities occurred. *Id.* The majority of peer reviewers commented that increased sea ice formation over deep waters would not offset sea ice losses in shallow waters in the Bering, Chukchi, and Beaufort Seas. NMFS and its peer reviewers also noted that although climate change had caused sea ice patterns to shift during the year, there would be a net decrease in the total number of days in which sea ice would be available to the seals. *Id.* at 76,743–44.

NMFS published its final rule designating the bearded seal Beringia DPS as threatened in December 2012. *Id.* at 76,740. After providing 60 days' pre-filing notice under ESA Section 11, 16 U.S.C. § 1540(g)(2)(A)(i), AOGA filed suit challenging NMFS's listing decision.

IV.

The Endangered Species Act seeks to recover endangered and threatened species and to "reverse the trend towards species extinction, whatever the cost." *Jewell*, 815 F.3d at 550–51 (quoting *Tenn. Valley Auth. v. Hill*, 437 U.S. 153, 184 (1978)); 16 U.S.C. § 1531(b). To achieve that purpose, the ESA requires the Secretary of Commerce, or her designee, to

identify and list endangered[4] or threatened[5] species. *See* 16 U.S.C. § 1533(a)(1) & (2); *see also Nw. Ecosys. All.*, 475 F.3d at 1137. When determining whether to list a species, the reviewing agency must make its decision "solely on the basis of the best scientific and commercial data available." 16 U.S.C. § 1533(b)(1)(A).

A.

1.

Because CBD's petition cited global warming as the primary threat to bearded seals, NMFS focused its status review on the impact of warmer temperatures on the Beringia DPS. Proposed Rule, 75 Fed. Reg. at 77,503. To determine the magnitude of climate change's effect on sea ice, NMFS utilized the IPCC's predictive models, and it attempted to apply those models to observational data that the Department of the Interior collected annually regarding sea ice in the Bering and Chukchi Seas. *Id.* at 77,503–05; Listing Rule 77 Fed. Reg. at 76,743. The IPCC's climate predictions through 2050 were based on already-collected data about present-day emissions.[6] Its climate projections for 2050 to

[4] The Act defines an "endangered species" as "any [non-insect] species which is in danger of extinction throughout all or a significant portion of its range." 16 U.S.C. § 1532(6).

[5] A "threatened species" is "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." 16 U.S.C. § 1532(20).

[6] The Fish and Wildlife Service ("FWS") previously used the IPCC's 2050 climate projections to justify its decision to list the polar bear as a threatened species. *See Safari Club Int'l v. Salazar* (*In re Polar Bear ESA*

2100, however, used contemporary data to predict potential climate trends under multiple scenarios. Proposed Rule, 75 Fed. Reg. at 77,503. Those models showed greater volatility, and thus less reliable predictive value, in the Arctic. *Id.* Because modeling for the second half of the century involved unknown variables (technological improvement, changes in climate policy), the IPCC used twenty-four models with slightly differing assumptions to obtain simulations of the upper- and lower-bounds for the increase in global temperatures from 2050 to 2100. *Id.*

To account for uncertainty in the IPCC's 2050 to 2100 predictions, NMFS used two models considered to be particularly reliable with respect to Arctic sea ice, and it used "medium" and "high" emissions scenarios to project monthly sea ice concentrations between March and July for each decade, beginning in 2025 and ending in 2095. *Id.* at 77,503–04. NMFS then compared the results of those projections to its observational data regarding sea ice to determine if the IPCC models performed reliably when applied to the Arctic. *Id.* at 77,504. Six models performed reliably in the Chukchi and east Siberian Seas, four performed reliably in the Beaufort and east Bering Seas, and one model performed reliably in the western Bering Sea. *Id.* NMFS disclosed its methodology, as well as the limits of the IPCC models, in the Proposed Listing Rule and in a Notice of Availability of Special Independent Peer Review Reports.

After confirming the models' accuracy, NMFS applied each to the areas occupied by the Beringia DPS to determine the range of temperatures per month from 2050 to 2100, and

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Listing & Section 4(d) Rule Litig.), 709 F.3d 1, 15–16 (D.C. Cir.2013) ("*In re Polar Bear Litig.*")

used those temperature projections to determine the impact of local warming on sea ice melt. *Id.* NMFS's projections demonstrated that by May and June 2050, there would be no sea ice in the Bering Strait, the East Siberian Shelf, or the Barents or Bering Seas. *Id.* By July 2050, sea ice would recede to less than 20% of the mean or disappear entirely from the Beaufort, Chukchi, and East Siberian seas. *Id.* Most dramatically, by the time NMFS sought a second round of public comment on its climate projections, sea ice scientists published research indicating that the IPCC climate models understated the speed at which temperatures were rising at the poles. *Id.* at 77,503. Using observational data, those studies predicted that temperatures at the Arctic were 30 years ahead of schedule and that there would be "[a] nearly sea ice free summer Arctic by mid-century." *Id.* at 77,504.

Plaintiffs contend that NMFS used climate models that cannot reliably predict the degree of global warming beyond 2050 or the effect of that warming on a subregion, such as the Arctic. Although Plaintiffs frame their arguments as challenging long-term climate projections, they seek to undermine NMFS's use of climate change projections as the basis for ESA listings. Plaintiffs' contention is unavailing; in *Alaska Oil and Gas Association v. Jewell*, we adopted the D.C. Circuit's holding that the IPCC climate models constituted the "best available science" and reasonably supported the determination that a species reliant on sea ice likely would become endangered in the foreseeable future. 815 F.3d at 558–59; *In re Polar Bear Litig.*, 709 F.3d at 4–6, 9–11.

We have stressed that we "must defer to the agency's interpretation of complex scientific data" so long as the agency provides a reasonable explanation for adopting its

approach and discloses the limitations of that approach. *Nw. Ecosys. All.*, 475 F.3d at 1150; *see also San Luis & Delta-Mendota Water Auth. v. Jewell*, 747 F.3d 581, 602 (9th Cir. 2014) ("The determination of what constitutes the *best* scientific data available belongs to the agency's special expertise . . . . [and w]hen examining this kind of scientific determination . . . a reviewing court must generally be at its most deferential." (internal quotation marks omitted)). NMFS provided ample evidence of significant sea ice loss from 2007 to 2050, a period in which specific data supports the IPCC climate projections. Proposed Rule, 75 Fed. Reg. at 77,503–05. Those projections indicate that during months in which bearded seals used that ice for "critical life events" such as mating, birthing, and nursing, most Beringia DPS habitats will have lost most, if not all, of their sea ice. *Id.* at 77,504. By September 2010, observational data confirmed that the amount of summer sea ice in the areas populated by the Beringia DPS was 40% below the long-term average. *Id.* at 77,503. NMFS has provided a reasonable explanation, based on the best available scientific and commercial data, for relying on those projections in its listing decision.

NMFS's projections for the second-half of the century are also reasonable, scientifically sound, and supported by evidence. There is no debate that temperatures will continue to increase over the remainder of the century and that the effects will be particularly acute in the Arctic. The current scientific consensus is that Arctic sea ice will continue to recede through 2100, and NMFS considered the best available research to reach that conclusion. One independent peer reviewer noted that nothing in "existing data would change the general picture that sea ice habitats important to bearded seals are disappearing and will continue to disappear, especially in the Bering and Chukchi seas." Excerpts of R. at

115, ECF No. 10. A second peer reviewer opined that it was "more likely than not that the *uncertainty* attaching to 80-year predictions of how changing climate will affect bearded seals and their habitat has been, is being, and will be greatly underestimated." Excerpts of R. at 118, ECF No. 10. All parties agree that there will be sea ice melt; the only uncertainty is the magnitude of warming, the speed with which warming will take place, and the severity of its effect.

The fact that climate projections for 2050 through 2100 may be volatile does not deprive those projections of value in the rulemaking process. The ESA does not require NMFS to make listing decisions only if underlying research is ironclad and absolute. *See San Luis & Delta-Mendota Water Auth.*, 747 F.3d at 602 ("[W]here the information is not readily available, we cannot insist on perfection: [T]he best scientific . . . data *available*, does not mean the best scientific data *possible*." (internal quotation marks omitted) (emphasis added)). The ESA directs NMFS to make its determinations "solely on the basis of the best scientific and commercial data available . . . after conducting a review of the status of the species." 16 U.S.C. § 1533(b)(1)(A). After conducting that assessment, if NMFS finds it likely that a species will "become an endangered species within the foreseeable future throughout all or a significant portion of its range," it must list that species as threatened. 16 U.S.C. §§ 1532(20), 1533(b)(1)(B)(ii). 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. *See Jewell*, 815 F.3d at 558 ("To the extent that Plaintiffs demand greater scientific specificity than available data could provide, [they] echo the district court's error in demanding too high a standard of scientific proof.").

The majority of independent peer reviewers agreed that NMFS's long-term climate projections were based on the "best scientific and commercial data available," that there was scientific consensus regarding the "direction and effect" of climate change, that there would be significant sea ice loss in the Beringia DPS's habitat, and that such a significant loss of habitat would almost certainly have a negative effect on the bearded seal's survival. Moreover, under NMFS's 2007 to 2050 climate projections, even if global warming plateaued in the second-half of the century, devastating sea ice losses would still result during months that are currently critical to the bearded seal's propagation.[7] Proposed Rule, 75 Fed. Reg. at 77,501–06.

Further, climate studies released and noticed for public comment after the publication of the Proposed Listing Rule indicated that the Arctic was warming at a much faster rate than anticipated by the IPCC mid-century projections. Those studies, which are included in the administrative record, advised that observational data regarding current temperature increases indicated that Arctic sea ice may disappear as early as 2040—approximately 50 years earlier than NMFS predicted when it suggested the Beringia DPS would lose its sea ice habitat by 2095. *See Jewell*, 815 F.3d at 558–60 ("FWS also noted [in *In re Polar Bear Litigation*] that the observational record of current sea ice losses indicates that losses seem to be about 30 years ahead of the modeled values,

[7] In the proposed and final rules, NMFS provided information regarding the negative impact of mid-century sea ice melt on the bearded seal's survival. Proposed Rule, 75 Fed. Reg. at 77,503–04 & 77,506; Listing Rule, 77 Fed. Reg. at 76,742–44. The district court did not address those projections, but instead focused on the longer-term projections, which predict a total loss of sea ice.

which suggests a seasonally ice-free Arctic may come a lot sooner than expected."). The administrative record demonstrates that NMFS provided a reasonable and evidence-based justification for its mid-century and end-of-century sea ice projections.

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 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. In light of the data available to it during the rulemaking process, NMFS reasonably concluded that there would be continued sea ice loss over shallow waters, resulting in habitat loss that would almost certainly threaten the Beringia DPS's survival. NMFS has provided a rational and reasonable basis for evaluating the bearded seal's viability over 50 and 100 years, and it has candidly disclosed the limitations of the available data and its analysis. The ESA does not require more, and NMFS did not act arbitrarily or capriciously in concluding that the effects of global climate change on sea ice would endanger the Beringia DPS in the foreseeable future.

2.

Plaintiffs advance three principal arguments to challenge NMFS's listing decision. First, Plaintiffs contend that NMFS's use of longer-term climate projections diverges from its previous practice of setting the year 2050 as the outer boundary of its "foreseeable future" analysis. NMFS has argued, and several federal courts have agreed, that the agency may determine the timeframe for its "foreseeable future" analysis based upon the best data available for a

particular species and its habitat. *In re Polar Bear Litig.*, 709 F.3d at 10–11, 15–16 (allowing NMFS to determine the timeline for "foreseeable future" threats of extinction based on the specific species, habitat, and best available science at the time of listing); *see also W. Watersheds Project v. Ashe*, 948 F. Supp. 2d 1166, 1180 (D. Idaho 2013) ("The [agency's] assessment of the 'foreseeable future' is typically based on the timeframes over which the best available scientific data allow [the agency] to reliably assess threats and the species' response to those threats . . . ." (internal quotation marks omitted)); *Ctr. for Biological Diversity v. Lubchenco*, 758 F. Supp. 2d 945, 967 (N.D. Cal. 2010) (observing that "the length of time that constitutes the 'foreseeable future' for listing purposes may vary depending on the species and the threats it faces").

We apply the same standard of review whether an agency issues a new policy or changes a previous policy position. *Cf. FCC v. Fox Television Stations, Inc.*, 556 U.S. 502, 513–14 (2009). An internal guidance document that reflects an agency's "body of experience and informed judgment," but that is not promulgated through rulemaking, is typically afforded *Skidmore*[8] deference. *Fed. Express Corp. v. Holowecki*, 552 U.S. 389, 399 (2008); *Alaska Dep't of Envtl. Conservation v. EPA*, 540 U.S. 461, 488 (2004); *United States v. Mead Corp.*, 533 U.S. 218, 230–32 (2001). An agency must provide a reasoned explanation for adoption of its new policy—including an acknowledgment that it is changing its position and if appropriate, any new factual findings that may inform that change—but it need not demonstrate that the new policy is better than its prior policy. *Fox Television Stations*, 556 U.S. at 515; *see also Price v.*

[8] *Skidmore v. Swift & Co.*, 323 U.S. 134, 140 (1944).

Stevedoring Servs. of Am., Inc., 697 F.3d 820, 829–30 (9th Cir. 2012); *Nat'l Ass'n of Home Builders v. EPA*, 682 F.3d 1032, 1037–38 (D.C. Cir. 2012).

In 2009, the Department of the Interior issued an internal memorandum notifying the FWS that its interpretation of the "foreseeable future" must be supported by reliable data regarding "threats to the species, how the species is affected by those threats, and how the relevant threats operate over time." Office of the Solicitor of the U.S. Dep't of the Interior, *Memorandum on the Meaning of "Foreseeable Future" in Section 3(20) of the Endangered Species Act*, No. M-37021 (Jan. 16, 2009); *see also* Listing Rule, 77 Fed. Reg. at 76,753 (citing Notice of Reinitiation of Status Review for Ribbon Seal, 76 Fed. Reg. 77,467, 77,468 (Dec. 13, 2011) (reevaluating the ribbon seal petition in light of new information regarding sea ice decline)). The Solicitor noted that a threat-specific evaluation of the best data available would result in different "foreseeable future" time frames for different species and for different threats. Mem. No. M-37021 at 8.

NMFS acknowledged in its final Listing Rule that, consistent with the Solicitor's opinion and beginning with the bearded seal petition, it changed its interpretation of "foreseeable future" to a more dynamic, species-specific and evidence-based definition. Proposed Rule, 75 Fed. Reg. at 77,497; Listing Rule, 77 Fed. Reg. at 76,753. In prior petitions, NMFS had evaluated whether climate change would endanger a species by the year 2050, regardless of any research advancements regarding climate or a specific species. Listing Rule, 77 Fed. Reg. at 76,753 (explaining the use of climate projections through 2050 for the ribbon seal and polar bear). The Solicitor's advisory letter acknowledges

that its interpretation represents a change in agency policy, and it provides a thorough and reasoned explanation for its recommendation that the Service adopt a data-driven threat analysis for future harm. Mem. No. M-37021 at 4, 8–9. The letter also states explicitly that the policy change seeks to conform to federal appellate decisions requiring ESA analyses to adhere to the statute's "best data available" standard. *Id.* at 8–9 (citing *Bennett v. Spear*, 520 U.S. 154, 176 (1997); *Bldg. Indus. Ass'n of Superior Cal. v. Norton*, 247 F.3d 1241, 1246–47 (D.C. Cir. 2001)).

NMFS's decision to adopt a foreseeability analysis that is responsive to new, reliable research while accounting for species-, threat-, and habitat-specific factors is well-reasoned and consistent with the ESA's mandate. On the record before us, NMFS's changed approach was neither arbitrary nor capricious.

3.

Next, Plaintiffs contend that NMFS failed to provide an evidence-based explanation for the relationship between habitat loss and the bearded seal's survival. They argue that NMFS has not provided sufficient evidence to demonstrate a nexus between the loss of sea ice and the bearded seal's risk of future extinction. They note that at the time NMFS issued its final listing rule, the bearded seal had not suffered population losses, and they argue NMFS should have adopted a "wait and see" approach before determining whether to list the bearded seal.

Similarly, the district court took issue with NMFS's disclosure that it could only provide a range for the Beringia DPS baseline population, which would make it difficult to

measure the relationship between population declines and loss of access to sea ice. *Pritzker*, 2014 WL 3726121, at *15. The district court concluded that NMFS was unable to provide a predicted "population reduction," "extinction threshold," or "probability of reaching that threshold," and that without that information, there was no reasonable basis for listing the Beringia DPS as threatened. *Id.* & n.69. The district court expressed doubt that NMFS was able to conduct a reasonable risk assessment supported by evidence when the agency could not provide population information on the current state of the species. *Id.*

The district court's effort to impose requirements for which data is unavailable or does not exist is at odds with the ESA. NMFS demonstrated that, based on the best data available at the time of listing, a decrease in sea ice availability would likely have a significant adverse effect on the bearded seal population. In rejecting the Beringia DPS final listing rule, the district court imposed ad hoc requirements that exceed the ESA's provisions. The district court's request for unobtainable, highly specified data would require NMFS to wait until it had quantitative data reflecting a 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. Uncertainty regarding the speed and magnitude of that adverse impact, however, does not invalidate data presented in the administrative record that reasonably supports the conclusion that loss of habitat at key life stages will likely jeopardize the Beringia DPS's survival over the next 85 years.

We recently reversed a district court's decision to vacate an ESA critical habitat rule because the court required highly

specific information for which data simply did not exist. In *Alaska Oil and Gas Association v. Jewell*, the district court suggested that an agency could only designate areas containing polar bear dens as critical habitats, as opposed to conserving a greater amount of land to allow the bears to roam. 815 F.3d at 555. We rejected the district court's imposition of additional requirements because the district court's "narrow construction of critical habitat runs directly counter to the Act's conservation purposes." *Id.* We noted that the ESA was "concerned with protecting the future of the species, not merely the preservation of existing bears." *Id.*

The Service need not wait until a species' habitat is destroyed to determine that habitat loss may facilitate extinction. In *Defenders of Wildlife v. Norton*, we held that evidence of habitat loss, without a reasoned explanation providing a causal link between loss of habitat and a species' survival, was inadequate to support listing a species as threatened. 258 F.3d 1136, 1143 (9th Cir. 2001). But NMFS did not rely on habitat loss, alone, to justify its listing decision. Instead, the agency drew upon existing research to explain how habitat loss would likely endanger the bearded seal. *See In re Polar Bear Litig.*, 709 F.3d at 9–10 (distinguishing *Defenders of Wildlife* by noting that the agency's reasoned explanation regarding the impact of habitat loss on a specific species provided an adequate basis for its listing decision). NMFS has demonstrated that it "considered the relevant factors and articulated a rational connection between the facts found and the choices made." *Nw. Ecosys. All.*, 475 F.3d at 1140 (quoting *Nat'l Ass'n of Home Builders v. Norton*, 340 F.3d 835, 841 (9th Cir. 2003)). That is all the ESA requires.

4.

In addition to contesting the causal relationship between loss of sea ice and the Beringia DPS's long-term survival, Plaintiffs contend that NMFS was required to demonstrate that the impact of climate change on the Beringia DPS "will be of a magnitude that places the species 'in danger of extinction' by the year 2100." Plaintiffs' argument misinterprets the ESA's requirement that an agency demonstrate that a species will "likely become an endangered species within the foreseeable future" before listing that species as threatened under the Act. 16 U.S.C. § 1532(20).

NMFS correctly contends that the ESA directs the agency to determine the likelihood of a species' endangerment based on one or more statutory factors: (1) the present or threatened destruction of a species' habitat or range; (2) overutilization of the species for commercial, recreational, scientific, or educational purposes; (3) disease or predation; (4) the inadequacy of existing regulatory mechanisms; or (5) other natural or manmade factors affecting its continued existence. 16 U.S.C. § 1533(a)(1). Significantly, the ESA does not require an agency to quantify population losses, the magnitude of risk, or a projected "extinction date" or "extinction threshold" to determine whether a species is "more likely than not" to become endangered in the foreseeable future. NMFS also contends that the district court erred when it held that NMFS must demonstrate a "predicted population reduction," define an "extinction threshold," and provide information on the "probability of reaching that threshold within a specified time."

NMFS is correct; neither the ESA nor our case law requires the agency to calculate or otherwise demonstrate the

"magnitude" of a threat to a species' future survival before it may list a species as threatened. Although the phrase "likely to become endangered" is not defined by the ESA or a regulation, NMFS has interpreted the term "likely" to have its common meaning (i.e., more likely than not). Indeed, most dictionaries define "likely" to mean that an event, fact, or outcome is probable. *Likely*, THE MERRIAM-WEBSTER DICTIONARY (new ed. 2016); *Likely*, OXFORD ENGLISH DICTIONARY ONLINE (3d ed. 2016); *Likely*, BLACK'S LAW DICTIONARY (10th ed. 2014); *see also Taniguchi v. Kan Pac. Saipan, Ltd.*, 132 S. Ct. 1997, 2002–04 (2012) (discussing the use of dictionaries to determine the ordinary or common meaning of a word). We agree with the D.C. Circuit that NMFS is not required to define "likely" in terms that require specific quantitative targets. *In re Polar Bear Litig.*, 709 F.3d at 14–15; *cf. Defs. of Wildlife*, 258 F.3d at 1141–43 (declining to adopt a quantitative definition when interpreting the phrase "substantial portion of its range").

We conclude that NMFS did not misinterpret or misapply the word "likely" when it concluded that the bearded seal was "likely to become an endangered species within the foreseeable future."

* * *

Although data regarding the bearded seal is limited, NMFS conducted a thorough assessment based on the best available scientific and commercial data, and it seriously considered the comments it received prior to listing the Beringia DPS as a threatened species. In arriving at that conclusion, NMFS complied with the letter and spirit of the ESA, and it afforded the public ample notice and opportunity to participate in its rulemaking process. In light of the

robustness of NMFS's rulemaking process, as well as our highly deferential standard of review, we hold that NMFS's final rule listing the Beringia DPS as threatened was not arbitrary or capricious, and its listing decision was supported by substantial evidence.

B.

We turn to Alaska's argument that NMFS failed to comply with its obligations under the ESA to provide the State with a written justification explaining why it "fail[ed] to adopt regulations consistent with the [state] agency's comments." 16 U.S.C. § 1533(i) ("ESA Section 4(i)" or "Section 4(i)"); *see also* 50 C.F.R. § 424.18. Alaska state agencies, including the Department of Fish and Game, Department of Environmental Conservation, Department of Natural Resources, and Department of Law, jointly submitted comments recommending that NMFS decline to list any sea ice seals as threatened and to revisit the issue in 20 to 50 years.

NMFS sent a letter to the Commissioner of the Alaska Department of Fish and Game, the lead agency for the State, notifying Alaska of its listing decision and identifying sections of the final listing rule where NMFS addressed the State's substantive comments. Alaska argued, and the district court agreed, that NMFS's letter to Alaska was insufficient to discharge its notification duties under ESA Section 4(i). *Pritzker*, 2014 WL 3726121, at *10.

The district court, however, did not have the benefit of our opinion in *Alaska Oil and Gas Association v. Jewell*, which held that Section 4(i) did not impose a separate notification duty upon federal agencies. 815 F.3d at 562–64.

Relying on *T-Mobile South, LLC v. City of Roswell*, 135 S. Ct. 808, 811 (2015), we held that nothing in Section 4(i) required separate state notification—the provision only required that the justification for rejecting a state agency's comments be addressed in writing. *Jewell*, 815 F.3d at 563. We further held that Section 4(i) "does not foreclose cross-referencing other publicly available documents," and we noted that when several state agencies submit a consolidated comment letter, a federal agency may respond with a single letter to the State. *Id.*

The State's arguments are foreclosed in light of our holding in *Alaska Oil and Gas Association v. Jewell*. NMFS's final listing rule provides thorough responses to Alaska's substantive comments, and any issues unaddressed in the rule are discussed in the agency's letter to Commissioner Campbell. Although Alaska argues that NMFS failed to address several of its substantive comments, the record indicates otherwise. For example, NMFS addressed Alaska's argument that some bearded seals did not rely on multi-year ice in Comments 10, 24, and 32. NMFS addressed Alaska's argument that temperature oscillations could result in habitat gains in Comment 8. NMFS did not discuss in detail Alaska's hypothesis that bearded seals could survive in deep water because the majority of the record evidence found that seals preferred to feed in shallower waters, and there was no reliable data indicating that bearded seals lived year-round in deep waters or could adapt to such circumstances.[9] Finally, NMFS adopted the position of the

[9] Alaska argues that NMFS's letter failed to address its resiliency argument, which appears in Comment 9 of the Listing Rule. Although NMFS failed to highlight Comment 9 in its letter, the state agencies' substantive concerns were adequately addressed in the final Listing Rule.

overwhelming majority of the world's climate scientists and rejected Alaska's argument that climate projections are "hypotheses" that are not linked to observable data and that cannot provide reasonable estimates of future climate-change-related phenomena.

Thus, consistent with *Alaska Oil and Gas Association v. Jewell*, NMFS satisfied its Section 4(i) obligation to provide written responses that cite to record evidence. Although Alaska may disagree with NMFS's resolution of conflicting opinions and its final listing determination, the State received the notice, opportunity, and process required by 16 U.S.C. §§ 1533(b)(5)(A)(ii) and 1533(i). *See Jewell*, 815 F.3d at 563–64 (noting that a federal agency's rejection of a state comment does not constitute a failure to provide a substantive response). On this record, NMFS clearly fulfilled its procedural and substantive obligations under Section 4(i).

V.

The judgment of the district court is **REVERSED**.