

Nos. 16-35380 & 16-35382

**IN THE UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT**

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

v.

WILBUR ROSS, * in his official capacity as Secretary of Commerce;
TIMOTHY GALLAUDET, * in his official capacity as Under Secretary of
Commerce for Oceans and Atmosphere and Acting Administrator for the
National Oceanic and Atmospheric Administration; NATIONAL MARINE
FISHERIES SERVICE; CHRIS OLIVER, * Assistant Administrator for
Fisheries, National Oceanic and Atmospheric Administration; NATIONAL
OCEANIC AND ATMOSPHERIC ADMINISTRATION, *Defendants-*

Appellants,

and

CENTER FOR BIOLOGICAL DIVERSITY,

Intervenor-Defendant-Appellant.

ON APPEAL FROM THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF ALASKA

Nos. 4:14-cv-00029-RRB, 4:15-cv-00002-RRB, 4:15-cv-00005-RRB

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TABLE OF CONTENTS

TABLE OF AUTHORITIES	iii
GLOSSARY	v
SUMMARY OF ARGUMENT	1
I. NMFS’s Determination is Supported by the Record and Constitutes a Reasonable Exercise of Scientific Judgment.	3
A. NMFS’s reliance on sea-ice projections was not arbitrary or capricious.....	4
B. The record supports NMFS’s decision to evaluate threats to habitat using snow-cover model projections.	7
1. NMFS’s model results compared favorably with other model results and studies of observed snow depths.	8
2. NMFS reasonably relied on the models to forecast large-scale trends in on-ice snow cover.	11
3. Two of the three peer reviewers with expertise in climate-model projections found NMFS’s snow- cover modeling reliable.....	14
4. NMFS reasonably based the habitat assessment on snow-cover projections.	17
C. NMFS’s finding that the Arctic ringed seal is likely to become endangered is rational, supported by the record, and adequately explained.....	19
1. In determining that the species will be at risk of extinction by 2100, NMFS reasonably relied on: (a) the link between pup survival and loss of on-ice snow cover; and (b) the BRT’s extinction risk assessment.	21

2.	The ESA does not require a more precise showing of “magnitude.”	25
3.	Plaintiffs’ other arguments lack merit.	26
a.	Other listings cited by Plaintiffs are inapposite.....	26
b.	The agency need not await evidence of actual impacts from the threat.....	27
c.	Listing the ringed seal does not require listing every arctic species.	28
II.	NMFS adequately responded to the State of Alaska’s comments.	29
	CONCLUSION.....	31
	CERTIFICATE OF COMPLIANCE	
	CERTIFICATE OF SERVICE	

TABLE OF AUTHORITIES

CASES:

<i>Alaska Oil & Gas Ass’n v. Jewell</i> (“ <i>Polar Bear CH</i> ”), 815 F.3d 544 (9th Cir. 2016), <i>cert. denied</i> , 137 S. Ct. 2110 (2017)	4
<i>Alaska Oil & Gas Ass’n v. Pritzker</i> (“ <i>AOGA</i> ”), 840 F.3d 671 (9th Cir. 2016)	1-4, 6, 7, 10, 18, 19, 22, 25-28
<i>Bennett v. Spear</i> , 520 U.S. 154 (1997)	19
<i>Ctr. for Biological Diversity v. USFWS</i> , 807 F.3d 1031 (9th Cir. 2015)	18
<i>Ctr. for Biological Diversity v. Bureau of Land Management</i> (“ <i>BLM</i> ”), 833 F.3d 1136 (9th Cir. 2016)	2, 17
<i>FCC v. Fox Television Stations, Inc.</i> , 556 U.S. 502 (2009)	6, 7
<i>Hillis v. Heineman</i> , 626 F.3d 1014 (9th Cir. 2010)	30
<i>In re Polar Bear Litig.</i> , 709 F.3d 1 (D.C. Cir. 2013)	22, 26, 27
<i>NRDC v. Pritzker</i> , 828 F.3d 1125 (9th Cir. 2016)	17
<i>Nw. Ecosys. All. v. U.S. Fish & Wildlife Serv.</i> , 475 F.3d 1136 (9th Cir. 2007)	18
<i>San Luis & Delta-Mendota Water Auth. v. Jewell</i> (“ <i>Delta Smelt</i> ”), 747 F.3d 581 (9th Cir. 2014)	17, 18, 19

San Luis & Delta-Mendota Water Auth. v. Locke (“*San Luis*”),
776 F.3d 971 (9th Cir. 2014)..... 7

Western Watersheds Project v. Ashe,
948 F. Supp. 2d 1166 (D. Idaho 2013) 26

STATUTES:

Administrative Procedure Act:

5 U.S.C. § 553(c)..... 30

Endangered Species Act:

16 U.S.C. § 1532(6) 25

16 U.S.C. § 1532(20)..... 20, 25

16 U.S.C. § 1533(a)(1)(A) 25

16 U.S.C. § 1533(b)(4) 3, 29, 30

16 U.S.C. § 1533(4)(i) 3, 29, 30

RULES AND REGULATIONS:

73 Fed. Reg. 79,822 (Dec. 30, 2008)..... 5

74 Fed. Reg. 53,683 (Oct. 20, 2009) 28

75 Fed. Reg. 65,239 (Oct. 22, 2010) 4, 5

77 Fed. Reg. 76,740 (Dec. 28, 2012)..... 5, 22, 28

78 Fed. Reg. 41,371 (July 10, 2013) 5, 6, 28

GLOSSARY

AOGA	Alaska Oil and Gas Association
APA	Administrative Procedure Act
AR4	Fourth Assessment Report
BRT	Biological Review Team
CCSM3	Community Climate System Model, version 3
CMIP5	Coupled Model Intercomparison Project Phase 5
CBD	Center for Biological Diversity
ER	Excerpts of Record
ESA	Endangered Species Act
FR	Final Rule
FWS	United States Fish and Wildlife Service
IPCC	Intergovernmental Panel on Climate Change
NMFS	National Marine Fisheries Service
NSB	North Slope Borough
PR	Proposed Rule
SER	Supplemental Excerpts of Record
SR	Status Review
USSER	United States' Supplemental Excerpts of Record

SUMMARY OF ARGUMENT

Based on the administrative record of this rulemaking, the existing precedent of this Circuit, and the highly deferential standard of review, the 2012 decision by the National Marine Fisheries Service (“NMFS”) to list the Arctic ringed seal as a threatened species under the Endangered Species Act (“ESA”) was not arbitrary or capricious. This Court recently upheld a similar NMFS determination to list another ice-dependent Arctic species, a subpopulation of the bearded seal, based on the same considerations. *Alaska Oil & Gas Ass’n v. Pritzker* (“AOGA”), 840 F.3d 671, 683 (9th Cir. 2016), *petitions for cert. filed*, Nos. 17-118 and 17-133. As may occur with respect to any agency, this listing determination is not necessarily set in stone and may be subject to review or reconsideration based on the best available science and the agency’s lawful interpretation of the relevant statutes and regulations.

Part I of this reply brief responds to the three principal arguments advanced by the Plaintiffs-Appellees (“Plaintiffs”): (1) that NMFS failed to explain the rationale for considering sea-ice projections out to 2100, instead of 2050; (2) that projections of on-ice snow cover are not sufficiently reliable to support a listing decision; and (3) that the record lacks substantial evidence supporting NMFS’s determination that projected

habitat losses are “likely” to cause the species to be in danger of extinction by 2100.¹ Just as they did in *AOGA*, Plaintiffs seek to substitute their own scientific judgment for that of the agency, demanding a level of certainty that is not required by the ESA or the APA. *AOGA*, 840 F.3d at 683.

As we demonstrate, NMFS adequately explained the rationale for considering model results out to 2100. Substantial evidence supported NMFS’s projections of threats to habitat and NMFS’s conclusions about the species’ likely response to the threats. NMFS reasonably concluded that, with substantial decreases in on-ice snow cover throughout the seals’ range, the Arctic ringed seal is likely to become in danger of extinction within the foreseeable future throughout all or a significant portion of its range. This Court should not substitute the Plaintiffs’ judgment for the scientific judgment of the agency. *See Ctr. for Biological Diversity v. Bureau of Land Management (“BLM”)*, 833 F.3d 1136, 1148 (9th Cir. 2016) (differences in opinion are not sufficient grounds for rejecting the analysis of agency experts that are supported by substantial evidence).

¹ This brief refers to three distinct groups of Plaintiffs—the Alaska Oil and Gas Association, the North Slope Borough *et al.*, and the State of Alaska—as AOGA, NSB, and Alaska, respectively. It refers to NMFS’s final rule as “FR,” proposed rule as “PR,” and Status Review as “SR.”

Part II of this reply brief responds to Alaska's new argument that NMFS violated ESA §4(b)(4) by inadequately responding to Alaska's comments on the Proposed Rule. Because the district court rejected Alaska's argument that NMFS violated ESA §4(i) by inadequately responding to comments and Alaska did not cross-appeal, Alaska has forfeited that argument. Alaska also forfeited its new argument about ESA §4(b)(4) because Alaska did not raise the argument in district court. In any event, NMFS adequately considered and responded to Alaska's comments.

I. NMFS's Determination Is Supported by the Record and Constitutes a Reasonable Exercise of Scientific Judgment.

In determining whether a species is likely to become endangered within the foreseeable future and warrants listing as threatened, NMFS evaluates both the foreseeability of the threat to the species and the foreseeability of the species' response to the threat. ER87. NMFS used 2100 as the foreseeable future for estimated changes in sea ice and snow cover due to climate change. NMFS based that time horizon on the Fourth Assessment Report ("AR4") of the IPCC, issued in 2007; the scientific papers used in or resulting from the AR4; and subsequent studies. NMFS found that, collectively, this research shows that "warming will continue throughout the century" and that the "trend is clear and unidirectional." ER89(Cmt.9); *accord AOGA*, 840 F.3d at 679-80.

This Court has twice rejected claims (by many of these same parties) that the same or similar climate models are insufficiently reliable to support ESA determinations for ice-dependent Arctic animals. *AOGA*, 840 F.3d at 679; *Alaska Oil & Gas Ass'n v. Jewell* (“*Polar Bear CH*”), 815 F.3d 544, 558-59 (9th Cir. 2016), *cert. denied*, 137 S. Ct. 2110 (2017). The Court upheld NMFS’s findings that IPCC climate models represent the “best available science” and can reasonably support “the determination that a species reliant on sea ice likely would become endangered in the foreseeable future.” *AOGA*, 840 F.3d at 679. The record here provides adequate support for this agency action under the APA’s highly deferential standard of review and the precedent of this Circuit.

A. NMFS’s reliance on sea-ice projections was not arbitrary or capricious.

Plaintiffs assert (NSB.Br.28-35) that NMFS failed to provide a “reasoned explanation” for considering 2100 as the “foreseeable future” for sea-ice projections, rather than terminating the assessment at mid-century as it had in its ribbon seal and spotted seal decisions. Plaintiffs mischaracterize how NMFS has approached listing decisions for ice-dependent species. Each of NMFS’s recent listing determinations for Arctic species—spotted seal (2010), ringed seal (2012), bearded seal (2012), and ribbon seal (2013)—considered climate-change effects through 2100. 75

Fed. Reg. 65,239, 65,240 (Oct. 22, 2010) (Southern spotted seal);² ER73 (ringed seal); 77 Fed. Reg. 76,740, 76,753 (Dec. 28, 2012) (bearded seal); 78 Fed. Reg. 41,371 (July 10, 2013) (ribbon seal).

The *only* ESA determination for a sea-ice dependent species in which NMFS truncated projections at 2050 was the 2008 decision not to list the ribbon seal. 73 Fed. Reg. 79,822, 79,823 (Dec. 30, 2008) (SER234). On January 16, 2009, the Department of the Interior, Office of the Solicitor, issued a memorandum about the meaning of the term “foreseeable future.” SER154-169 (2009 M-Opinion). Beginning in 2009, consistent with the M-Opinion analysis, NMFS modified the approach to determining “foreseeable future” to a “more threat-specific approach.” ER52; ER73. NMFS explained that this approach fit best with “NMFS’s intention to use the best and most current data and analytical approaches available.” ER88-89(Cmt.9); *see also* ER73; SER166 (2009 M-Opinion) (recognizing “varying degrees of foreseeability with respect to various threats”). Thus, in 2013, NMFS reviewed the 2008 ribbon-seal finding cited by Plaintiffs,

² For the spotted seal, NMFS did not include a thorough analysis of sea ice conditions beyond 2050 or define 2100 as the “foreseeable future” because NMFS determined that, “by about the middle of the 21st century[,] seasonal sea ice will rarely form within the range” of this seal. 75 Fed. Reg. at 65,243(Cmt.10); *see also id.* at 65,247 (“reliable ice formation” in species’ range would “cease by the latter half of the 21st century”).

conducted a new status review, and evaluated climate-change threats out to 2100. 78 Fed. Reg. at 41,372-73.

Second, NMFS explained that it had previously truncated projections at 2050 because of “the difficulty of incorporating the increased divergence and uncertainty in climate scenarios beyond that time.” ER73. But in more recent findings for ice-dependent seals, NMFS has found that the models in the record “consistently project overall diminishing sea ice and snow cover at least through the current century.” ER77. NMFS concluded that, even considering the variation in projections after 2050, it would not disregard them. NMFS explained that it addressed the greater uncertainty regarding projections “farther into the future” by incorporating the uncertainty into the assessment of the threats and the species’ response. ER73; ER88-89(Cmt.9). NMFS did so through the risk assessment process. ER89(Cmt.9).

In *AOGA*, this Court rejected similar challenges to the adequacy of NMFS’s explanation for considering sea-ice projections out to 2100, instead of truncating projections at 2050. *AOGA*, 840 F.3d at 681-82. NMFS’s explanations in the listing decisions are nearly identical.

NMFS met the APA standard of providing a “reasoned explanation for its action.” *FCC v. Fox Television Stations, Inc.*, 556 U.S. 502, 515 (2009).

NMFS's listing determinations are not immune from review or reconsideration by NMFS. The record here shows that NMFS displayed an "awareness" that it had previously not considered effects beyond 2050 and explained why it later "*believe[d]* it" better to consider these projections. *Id.* (emphasis in original).

B. The record supports NMFS's decision to evaluate threats to habitat using snow-cover model projections.

Plaintiffs recognize (NSB.Br.22) that a Court will "reject an agency's choice of a scientific model only when the model bears no rational relationship to the characteristics of the data to which it is applied." *San Luis & Delta-Mendota Water Auth. v. Locke* ("San Luis"), 776 F.3d 971, 994 (9th Cir. 2014). Nevertheless, Plaintiffs assert (NSB.Br.3, 20-28) that the models on which NMFS based the predictions of snow cover lacked "a rational relationship to the data they purportedly represent." That assertion is incorrect: as NMFS explained, the snow-cover model-results on which the Biological Review Team ("BRT") relied in the Status Review and on which NMFS relied in the Proposed Rule—the Community Climate System Model, version 3 ("CCSM3") (ER57)—correlated with available research on observed snow-depths and were corroborated by the results of ten other models.

1. NMFS’s model results compared favorably with other model results and studies of observed snow depths.

NMFS rationally relied on the CCSM3 model to analyze snow-cover projections. In 2012, after receiving comments from the peer reviewers, NMFS’s CCSM3 snow-cover projections were corroborated by a new snow-depth analysis that “uses a more advanced suite of [ten] models from the Coupled Model Intercomparison Project Phase 5 (CMIP5).” ER86(Cmt.3) (FR, citing the peer-reviewed scientific article Hezel *et al.* (2012) (“Hezel”)). The ten models analyzed in Hezel showed a broad range of snow depths, but all models showed that “snow depths will decline substantially in the future, similar to the CCSM3,” the model on which the BRT based the Status Review and on which NMFS based the Proposed Rule. ER87(Cmt.3). The spread in Hezel’s model projections “*declines over time*, lending greater support for these forecasts.” *Id.* (emphasis added).

Based solely on a 20-cm April snow-depth threshold, Hezel estimated “that the mean area of potential habitat for ringed seal reproduction north of 70°N decreases by nearly 70% over the 21st century.” USSER15. The CCSM3 model, although gauging the dramatic snow-loss in different terms, forecasted that the accumulation of snow on sea ice in April will decrease by

almost 50% in this century, with more than half of that decline projected to occur by mid-century. ER58(PR); ER200(SR).

NMFS further found that the CCSM3 model results are consistent with the measured snow depths in several studies. ER87(Cmt.3) (citing Radionov *et al.* 1997 and Ferguson *et al.* 2005); ER58 (PR, citing Weeks 2010). Similarly, Hezel found that the CMIP5 model projections compared well with existing observations. ER87(Cmt.3); *see* USSER12 (citing results of Warran *et al.* 1999 over the central Arctic and Kwok *et al.* 2011 over the western central Arctic). “[T]he model projections were on average about 10 percent below observations, but about one third of the individual models projected more snow than observed.” ER87(Cmt.3); USSER12 (describing this “satisfactory agreement between model and observations”). Moreover, NMFS observed that Hezel’s “analysis may underestimate future decreases in snow depths” because the models fail to account for two circumstances: (1) loss of drifting snow into “leads,” which are openings in the sea ice; and (2) the effect of winter and spring rainfall on snow accumulation and melting. ER87(Cmt.3); *see also* ER90(Cmt.15).

Plaintiffs argue (NSB.Br.26 n.27) that the observed snow-depth studies cited by NMFS cannot establish the reliability of the snow-cover projections for the future because they provide data regarding the past.

Plaintiffs fail to recognize the basic function served by testing models against observed data of past and current conditions. *See, e.g., AOGA*, 840 F.3d at 678 (describing method for cross-checking model reliability by comparing model results with actual data); ER169-70(SR).

Next, Plaintiffs challenge the reliability of the CCSM3 model because pups have been present in areas of the Bering Sea where the model predicted inadequate snow cover. NSB.Br.25-26. NMFS acknowledged that the model might not accurately predict snow depths for specific years or in specific regions, which may be influenced by short-term or local variations. NMFS stated that the models must be interpreted as indicating trends in conditions when averaged over large areas and across time, which NMFS found to show snow-depths decreasing everywhere. ER87(Cmt.5-6). Based on the record here, this degree of deviation from model projections should not render NMFS's use of the CCSM3 model arbitrary or capricious.

The Bering Sea had four years of colder than normal winter and spring conditions from 2007 to 2010, with near record sea-ice extents. ER56(PR); ER95(Cmt.35). An abnormally cold winter and spring might yield snow depths that are greater than those projected by the model. This type of variation does not necessarily mean the model is flawed at projecting long-term trends across a wider geographic area. NMFS

decided, based on the record before it, that available model projections for the next eight decades could be utilized even though certain near-term deviations from those projections have occurred. Plaintiffs do not identify any study of observed snow-depths that conflicts with NMFS's conclusion that the CCSM3 model results bear a rational relationship to the observed-snow-depth data.³

2. NMFS reasonably relied on the models to forecast large-scale trends in on-ice snow cover.

Plaintiffs argue that the models were unable to project snow depths with sufficient resolution “at local scales” or “regional scales” across “various parts of the species range.” NSB.Br.23-24 (quoting peer reviewers' comments). But as Plaintiffs acknowledge, NMFS did not even purport to “capture regional scale processes” with the CCSM3 model. NSB.Br.24 (quoting Barber SER146). NMFS stressed that the “models should be interpreted as indicating trends in conditions when averaged over large areas.” ER87(Cmt.5). The BRT experts and the other NMFS scientists involved in the listing decision concluded, in their expert judgment, that the

³ Plaintiffs observe (NSB.Br.25 n.26) that model predictions for *average* snow depths in *April* in Western Hudson Bay of 0-10 cm for the years 2000-2009 (ER202) are not consistent with actual measurements of *maximum* snow depth in *February to May* for the same area in the years 2000-2007 (SER520). But these are not comparable measurements.

models reasonably evaluate habitat alterations that ringed seals will face throughout their range in the foreseeable future. ER74; ER87-88(Cmt.5); ER200, 293, 299, 303, 308, 310, 311(SR). And several commenters and peer reviewers acknowledged that no data exist that would allow analysis or projections on a localized level. *See, e.g.*, SER134.⁴

NMFS acknowledged that the “resolution of the model projections of snow is certainly limited” and that “[t]here may well be local or regional variations sufficient to produce locally different trends.” ER87(Cmts.3, 5).⁵ But “the CCSM3 and more recent model results point unequivocally to less snow accumulation on the ice throughout the range of the species.” *Id.*; *see also* ER88(Cmt.5) (“the CCSM3 has snow depth decreasing everywhere”); ER87(Cmt.3) (noting models’ uniformity on this point). Despite predicted increases in winter precipitation in the Arctic, the CCSM3 model projected

⁴ The record contains comments by one peer reviewer, a marine mammal biologist, who contends that climate models cannot reliably forecast snow depths on either large or local scales. He concluded that, even accepting the snow-depth projections, “it is highly likely that seals will be able to find sufficient snow depths for lairs during the key months when reproduction is likely to occur.” SER140 (Hammill). NMFS explained why, based on the models, it disagreed with that comment. ER90(Cmt.14); *see also* ER60.

⁵ NMFS also recognized, as did one of the peer reviewers (SER150 Sjare), that the minimum on-ice snow-depth necessary to support ringed seal birth lairs may vary by region. ER89-90(Cmt.11).

a sharp decrease in April snow depth on sea ice—almost 50% in this century, with more than half of that decline occurring by mid-century.

ER58(PR); ER200(SR). As NMFS explained, on “the scale of the Northern Hemisphere,” even errors of a few hundred kilometers “cancel somewhat.” ER87-88(Cmt.5). Against this backdrop, NMFS reasonably relied on models that might not support short-term or local predictions.

Plaintiffs also question the relationship between snow-cover depth and snow-drift height. NSB.Br.23. The record demonstrates that drifts sufficient for birthing lairs “typically only occur where average snow depths are at least 20-30 cm (on flat ice) and where drifting has taken place along pressure ridges or ice hummocks.” ER76 (FR, citing multiple peer-reviewed articles). NMFS recognized that the “minimum adequate snow depth is unlikely to be a sharp threshold” and that there “may be regional differences in this threshold depth.” ER90(Cmt.11). In some instances, seals may survive in shallower depths and succumb in deeper depths. *Id.* But the record contains no evidence questioning the basic proposition that there must be a sufficient amount of average snow accumulation on the ice to form drifts along pressure ridges or hummocks adequate to support the formation and maintenance of snow caves essential to pup survival. In fact,

the estimate of minimum snow depths (on flat ice) comes from studies showing decreased pup survival where snow cover was inadequate. *Id.*

3. Two of the three peer reviewers with expertise in climate-model projections found NMFS's snow-cover modeling reliable.

NMFS consulted three peer reviewers (Perovich, Serreze, and Barber) for their expertise on sea ice, snow, and climate science. Two of them agreed with NMFS's assessment of the projected sea ice and snow-cover conditions. Dr. Perovich, a Research Geophysicist at the Army Corps of Engineers, stated that "the methods used to evaluate future sea ice conditions were valid and appropriate" and that the "CCSM3 model is the best source available for snow cover projections." SER498. He found the sections he reviewed to be "scientifically sound," acknowledging that "[p]rojecting snow depth on sea ice is difficult and there remain uncertainties both in the projected average depth and in spatial distribution of depth." *Id.* Dr. Serreze, Director of the National Snow and Ice Center at the University of Colorado, concurred that the "information provided adequately supports" listing the ringed seal. ER370.

The third peer reviewer with relevant expertise, Dr. Barber of the University of Manitoba, disagreed with the scientific significance of the snow-depth model-projections. SER143-153. NMFS considered Barber's

comments but disagreed with his assessment, in part based NMFS's view that he had mistaken assumptions about the CCSM3 model. *See, e.g.*, USSER1-10. For example, NMFS found that Barber incorrectly concluded (SER144) that the model assumed that "the seasonal periodicity of snow precipitation will stay the same." Barber stated that, with more open water in the fall and winter, he expects "increasing pulses of snow in the early winter and perhaps even through the winter." *Id.* But NMFS explained that Barber was mistaken about the model's assumptions: the BRT, NMFS, and Hezel all projected an *increase* in winter precipitation in a warming Arctic. *See, e.g.*, ER77(FR); ER87(Cmt.3); ER58(PR); ER200, 226-227(SR); USSER13 (Hezel). Despite the projected increases in winter snowfall, the models relied upon by NMFS nevertheless *all* forecast reductions in snow accumulation and duration. This is due primarily to (1) reduced sea-ice extent in the fall and winter and (2) earlier snow melt because of warmer air temperatures and increased rainfall in April and May.⁶

⁶ *See, e.g.*, ER58(PR) (CCSM3 model forecasted 50 percent decrease in snow accumulation by 2100); ER61(PR) (winter precipitation forecasted to increase in warming Arctic, but lower snow accumulation will result because of reduced ice duration); ER77(FR) (same); ER87(FR) (Hezel found "loss of sea ice as a platform . . . results in a substantial reduction" snow on sea ice); ER80 ("[i]ncreasingly late ice formation in autumn"

NMFS also concluded that Barber incorrectly concluded (SER145, 147) that the CCSM3 projections failed to account for a possible increase in ice deformation. The Proposed Rule, which Barber reviewed, had not explained that the model accounted for ice deformation. But in the Final Rule, NMFS explained how the CCSM3 model did so. ER86-87(Cmt.3) (model accounts for sea-ice deformation, which some commenters assert is “critical to the distribution and accumulation pattern of snow on ice”). The model shows that sea-ice deformation rates (resulting in ridges that increase drifting, important for lairs) may increase in some areas, including in the Canadian Archipelago. But in other areas, there will be less “converging” of ice floes when there is more open water in this century, and thus less ridging. ER87(Cmt.3).

NMFS’s reliance on the model results is not “in ‘direct conflict’ with the conclusions of *its* subject matter experts.” NSB.Br.24 (emphasis

contributes to “expectations of substantial decreases in snow accumulation”); ER64(PR) (same); ER116(SR) (“duration of ice cover will be substantially reduced” resulting in “lower snow accumulation on the ice”); ER87 (CCSM3 and more recent models “point unequivocally to less snow accumulation on the ice throughout the range of the species”); USSER2 (lead scientist of Status Review team, responding to Barber’s peer review, noting projected average increase of 27% in winter snow fall, but nonetheless net decrease in snow accumulation because of late ice-formation).

added). In *NRDC v. Pritzker*, 828 F.3d 1125, 1139 (9th Cir. 2016), cited by Plaintiffs, this Court stated that an “agency conclusion that is in ‘direct conflict with the conclusion of *its own* experts,’ . . . is arbitrary and capricious.” *Id.* (emphasis added). Here, NMFS’s own experts drew different conclusions from those of a single outside peer reviewer with relevant expertise, and explained why.⁷ And NMFS’s conclusion was (1) supported by the other two peer reviewers with climate modeling expertise; and (2) corroborated by 10 models in recent, peer-reviewed science, not considered by the peer reviewers. ER87(Cmt.3). This Court should not disturb the scientific judgment of the expert agency. *See BLM*, 833 F.3d at 1148.

4. NMFS reasonably based the habitat assessment on snow-cover projections.

In reviewing an agency’s scientific determination to rely on model results, which requires a high level of technical expertise, the Court is at its most deferential. *San Luis & Delta-Mendota Water Auth. v. Jewell* (“Delta

⁷ Plaintiffs (NSB.Br.23-24) also highlight the comments of three peer reviewers with expertise in marine mammal biology (Hammill, Sjare, and Quakenbush). Their concerns about model reliability primarily focused on the inability of the models to evaluate conditions on a localized scale, which is addressed above. *See supra* pp. 11-14. NMFS considered and specifically responded to these reviewers’ criticisms of the models. ER86-91.

Smelt”), 747 F.3d 581, 618 (9th Cir. 2014). Where no superior set of models have been identified, the only question is whether the “conclusions drawn from their evidence [is] not merely ‘weak,’ but ‘arbitrary and capricious.’” *Id.* Where the agency has relied on relevant evidence that a reasonable mind might accept as adequate to support a conclusion, an agency’s factual determination is supported by substantial evidence and is not arbitrary or capricious. *See, e.g., Ctr. for Biological Diversity v. USFWS*, 807 F.3d 1031, 1043 (9th Cir. 2015); *Delta Smelt*, 747 F.3d at 601. This Court has further “stressed that [it] ‘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.” *AOGA*, 840 F.3d at 679 (quoting *Northwest Ecosystem Alliance v. U.S. Fish & Wildlife Serv.*, 475 F.3d 1136, 1150 (9th Cir. 2007)). This is just such a circumstance.

NMFS provided a reasonable and scientifically supported methodology for projecting snow-cover losses in the Northern Hemisphere. NMFS explained its reliance on the snow-cover model, explained the corroboration of its snow-cover results by the more advanced models applied in Hezel, fairly represented the shortcomings of its projections, and reasonably applied the results to the anticipated responses by ringed seals.

NMFS's model projections, although not "ironclad" (*id.*), were corroborated by observational data and other peer-reviewed models, which established that they bore a rational relationship to the data to which they were applied. That is "all the ESA requires." *AOGA*, 840 F.3d at 680.⁸

C. NMFS's finding that the Arctic ringed seal is likely to become endangered is rational, supported by the record, and adequately explained.

The foregoing discussion demonstrates that, based on the record before it, NMFS reasonably relied on projections of substantial reductions in on-ice snow cover. It was also reasonable for NMFS to conclude that this substantial change in the ringed seal's habitat threatens the species' survival. *See* US.Br. 53-60.

NMFS explained that, by the end of this century, the "depth and duration of snow cover" are "forecasted to be inadequate for the formation and occupation of birth lairs over most of the subspecies' range." ER82; *see*

⁸ *Bennett v. Spear*, 520 U.S. 154 (1997), does not impose a higher showing of proof than "substantial evidence." *Contra* NSB.Br.47 & n.52; AOGA.Br.19. *Bennett* stated that 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." 520 U.S. at 176-77; *accord Delta Smelt*, 747 F.3d at 657 (same). Plaintiffs agree that NMFS based the listing decision on the best available science. AOGA.Br.1, 19, 38-40; NSB.Br.47. NMFS's analysis therefore comports with *Bennett*.

also ER76 (by 2100, “April snow cover suitable for birth lairs is expected to be limited to a portion of the central Arctic, most of the Canadian Arctic Archipelago, and a few other small isolated areas”). Without adequate snow cover, pup mortality is very high, as studies from many regions demonstrate. ER75-76(FR); ER224-225(SR). Five studies concluded that “[w]hen lack of snow cover has forced birthing to occur in the open . . . nearly 100 percent of pups died from predation.” ER75. A sixth study likewise concluded that, following “the collapse of subnivean lairs during unseasonal rains near southeastern Baffin Island, . . . most of the pups that survived exposure to cold were eventually killed” by predators. ER75-76.

NMFS reasonably determined that, with the loss of birth-lair habitat over most of the subspecies’ range, the “number of Arctic ringed seals will decline substantially,” and the subspecies “will no longer persist in substantial portions of their range.” ER82. Thus, NMFS concluded, the subspecies is likely to become in danger of extinction within the foreseeable future (*id.*) and warrants listing as a threatened species. *See* 16 U.S.C. § 1532(20) (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.”).

- 1. In determining that the species will be at risk of extinction by 2100, NMFS reasonably relied on (a) the link between pup survival and loss of on-ice snow cover; and (b) the BRT's extinction risk assessment.**

Despite substantial record evidence establishing the importance of adequate on-ice snow cover to the subspecies' survival, Plaintiffs argue (NSB.Br.37-39) that NMFS lacked the "requisite scientific data" (*id.* at 38) to make "the requisite 'reliable predictions' about the future population status of the species" (*id.* at 40). *See also* AOGA.Br.24-32 (faulting NMFS for not including population projections or trends). Plaintiffs acknowledge that various studies document the impact of inadequate snow cover on hypothermia and predation. NSB.Br.38 n.43. NSB nevertheless contends that NMFS may not list the ringed seal without additional data (NSB.Br.40) and a "study correlating these threats to an effect on the overall population status" (NSB.Br.38 n.43). AOGA similarly contends that the Final Rule is invalid because NMFS "cannot reliably forecast the population and its trend" and "does not know at what population size, distribution, or any other metric (quantitative or qualitative) the Arctic ringed seal would be endangered." AOGA.Br.30.

Both this Court and the D.C. Circuit have already established that "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 within the foreseeable future.” *AOGA*, 840 F.3d at 684. NMFS may draw “upon existing research to explain how habitat loss would likely endanger” the species. NMFS did so in listing the bearded seal, and this Court upheld the listing. *Id.* at 683. FWS did so in listing the polar bear, and the D.C. Circuit upheld the listing. *In re Polar Bear Litig.*, 709 F.3d 1, 9-10 (D.C. Cir. 2013).

As with the bearded seal, population estimates for the ringed seal are not sufficiently precise for use in judging population trends. *Compare AOGA*, 840 F.3d at 676, 683; 77 Fed. Reg. at 76,742 (bearded seal) *with* ER95(Cmt.34). In both cases, however, NMFS presented data “that reasonably supports the conclusion that loss of habitat at key life stages will likely jeopardize” the species’ survival later this century. *AOGA*, 840 F.3d at 683.

Models in the record project that the on-ice snow cover necessary for pup survival will be gone from all but a few regions by 2100. The Canadian Arctic Archipelago “is projected to be the last possible remnant of suitable habitat”; but even as to that region, NMFS does “not know how suitable or for how long.” ER88(Cmt.6). NMFS also noted that the extent to which

remnant areas with on-ice snow cover in the less-productive Arctic Basin will support ringed seal pups is unclear. ER82; ER97(Cmt.45). It was rational for NMFS to conclude, based on the projected loss of habitat areas where the species is likely to be able to successfully reproduce, that the species is likely to be in danger of extinction by 2100.

Plaintiffs suggest (NSB.Br.8-9) that, in the future (as temperatures rise), ringed seal pups might not need an average of 20 cm or more of snow cover, or that they might not need snow caves at all. But Plaintiffs cite no studies correlating actual snow-depth data with pup survival to support that supposition. All the research in front of NMFS was to the contrary. This research shows that birth lairs require snow depths of 50 to 65 cm or more and simple lairs require snow drifts of 45 cm. ER76 (citing six studies). Such drifts typically only occur where average snow-depths are at least 20-30 cm (on flat ice) and where drifting has taken place along pressure ridges or ice hummocks. *Id.* (citing five other studies). NMFS therefore considered areas forecasted to have fewer than 20 cm average snow-depth in April to be inadequate for formation of ringed seal birth lairs. *Id.* This was a conservative figure, given that the BRT found that average depths of 30 cm or more appear to be necessary for lairs to adequately protect against predation. *See* ER228(SR); *see also* USSER12

(20 cm is a conservative threshold). Indeed, Ferguson *et al.* (2005) found that pup survival dropped sharply when snow depths (on flat ice) were less than 32 cm. ER227-28(SR); ER89-90(Cmt.11). The record also shows that early breakup of sea-ice leads to premature weaning and poor pup survival. ER75; ER87(Cmt.4); ER90(Cmt.11); ER223.

The BRT's extinction-risk assessment also provides substantial evidence supporting the listing. Contrary to Plaintiffs' contentions (NSB.Br.41-45), the BRT explained why the risk to productivity and spatial structure are high (*see* US.Br.60-61) and why the risks to abundance and diversity are moderate. ER299 ("changes in ice and snow cover in the Arctic are likely to decrease the population," and seals likely will no longer "persist in substantial portions of their range"); ER306-307 (habitat changes will significantly reduce ecological variation).⁹ NMFS's conclusion that pupping will be restricted to small areas (of uncertain suitability and durability) is sufficient to support its finding that the ringed seal is likely to become in danger of extinction "within the foreseeable future throughout

⁹ Plaintiffs (AOGA.Br.43-44) misapprehend the respective roles of the BRT and NMFS regarding the risk assessment. The BRT did a status review, which included a risk assessment. But NMFS (not the BRT), reviews the risk assessment, the whole status review, and other information, and decides whether to list the species. *See* SER194-95; *see also* US.Br. 8-9, 12-14, 60-61; ER120(SR); ER94(Cmt.3).

all or a significant portion of its range” due to the “threatened destruction, modification, or curtailment of its habitat or range.” 16 U.S.C. § 1532(20) (definition of “threatened”); *id.* § 1532(6) (definition of “endangered”); *id.* § 1533(a)(1)(A); *see also AOGA*, 840 F.3d at 683.

2. The ESA does not require a more precise showing of “magnitude.”

This Court has already held that “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.” *AOGA*, 840 F.3d at 684. Plaintiffs argue for overruling that precedent, which the full Court already declined to do when it denied rehearing en banc in *AOGA*.

NMFS rationally evaluated the significance of the threat to the species’ survival through the extinction risk assessment. US.Br.60-61. In the risk assessment, eleven scientists evaluated the “significance of the threats to each ringed seal subspecies’ persistence.” ER292, 293. This approach is broadly applied where agencies lack sufficient information on populations to make quantitative assessments of the species’ population. *See* ER119-120 (describing the purpose of a risk assessment), ER159; ER81; *see also* SER194-95 (describing protocol for conducting risk assessments).

Even Plaintiffs concede that the significance or magnitude of a threat to species survival can be “rationally evaluated qualitatively.” AOGA.Br.36.

Plaintiffs rely on Interior’s 2009 M-Opinion as legal authority for establishing what is required to show that a species is “likely to” become endangered in the “foreseeable future.” AOGA.Br.22. But Plaintiffs disregard the relevant analysis in the M-Opinion, which explains that the “foreseeable future” relates “to the predictability of the impact or outcome for the specific species in question.” SER162. “Those predictions can be in the form of extrapolation of population or threat trends, *analysis of how threats will affect the status of the species, or assessment of future events that will have a significant new impact on the species.*” SER167 (emphasis added). Requiring more specific quantitative assessments is not required by the ESA, which simply requires the agency to determine whether, based on the “best available scientific and commercial data,” the species is “likely” to become in danger of extinction in the foreseeable future. AOGA, 840 F.3d at 684 (citing *In re Polar Bear Litig.*, 709 F.3d at 14-15).

3. Plaintiffs’ other arguments lack merit.

a. Other listings cited by Plaintiffs are inapposite.

Plaintiffs (AOGA.Br. 27-29) argue that *Western Watersheds Project v. Ashe*, 948 F. Supp. 2d 1166, 1178-1180 (D. Idaho 2013), demonstrates

that NMFS must have “population trend information” to list a species as threatened. This Court rejected that argument in *AOGA* and held that NMFS need not “measure the relationship between population declines and loss of access” to habitat. 840 F.3d at 683.

Plaintiffs’ reliance (*AOGA.Br.29-30*) on the polar bear listing is likewise misplaced. Plaintiffs suggest that, because population data and projections were feasible for the polar bear, the ringed seal cannot be listed without such data. But when affirming the polar bear listing, the D.C. Circuit *rejected* the argument that the agency must determine “how great a decrease in the current population would constitute endangerment.” *In re Polar Bear Litig.*, 709 F.3d at 9; *see also id.* at 8 (describing three-part analysis on which listing is based); *US.Br.32-33*. It was enough that the agency “clearly explained how the anticipated habitat loss renders this particular species likely to become endangered” and, specifically, “how the loss of sea ice harms the polar bear.” 709 F.3d at 9. The same is true here.

b. The agency need not await evidence of actual impacts from the threat.

Plaintiffs repeatedly assert that no data demonstrate present adverse effects to individual animals or the species as a whole from climate change. *AOGA.Br.7, 14, 19, 24, 30*. To the contrary, NMFS cited extensive record evidence that early snow melt from unseasonably warm temperatures and

early rains has increased pup mortality. *See supra* pp. 19-26; ER87(Cmt.4). In any event, NMFS need not wait until population loss occurs to list a species. *AOGA*, 840 F.3d at 682-83.

c. Listing the ringed seal does not require listing every arctic species.

Plaintiffs mischaracterize the basis for and effect of NMFS's listing decision. The district court (ER29 n.77) and Plaintiffs (*AOGA*.Br.19) suggest that upholding this listing, based on the scientific evidence evaluated by the agency, will lead to listing of every arctic species or virtually every species. This argument is belied by the facts. NMFS has already demonstrated that, in considering the best available scientific information, it makes species-specific assessments that may or may not result in listing under the ESA. *See, e.g.*, 77 Fed. Reg. at 76,740 (listing only the two distinct population segments of the Pacific subspecies of the bearded seal and not listing the Atlantic subspecies); 78 Fed. Reg. 41,3371 (2013) (listing of ribbon seal unwarranted); 74 Fed. Reg. 53,683 (Oct. 20, 2009) (listing of two distinct population segments of spotted seal unwarranted). NMFS addressed this argument in the Listing Rule and explained why listing of *this* subspecies is warranted on *this* record. ER94 (Cmt.29).

Plaintiffs also contend (AOGA.Br.19, 39), without support, that the listing decision gave “the benefit of the doubt to the species.” That standard applies to ESA Section 7 consultations, not to Section 4 listing decisions, and NMFS did not rely on it. Section 4 compelled NMFS to list the ringed seal after the agency found that the species is likely to become in danger of extinction within the foreseeable future.

Based on this record, and in light of the deferential standard of review, the scientific judgment of the agency should not be disturbed by the Court.

II. NMFS adequately responded to the State of Alaska’s comments.

Alaska argued below that NMFS violated ESA § 4(i) by not adequately responding to four comments on the Proposed Rule. The district court rejected that argument. ER19-22. Alaska did not appeal and has abandoned that claim. AK.Br.7.

Alaska now argues that NMFS failed to adequately respond to two of those comments, in violation of ESA § 4(b)(4). In so arguing, Alaska asks this Court to *reverse* the district court’s ruling that NMFS’s responses to comments were adequate. Alaska cannot resuscitate the challenge by dressing it up as an alternate ground for *affirming* the ruling that NMFS’s listing decision was not adequately supported or explained. The issue is

forfeited because Alaska did not appeal from the adverse ruling on ESA § 4(i), and because Alaska cannot raise a new legal issue for the first time on appeal. *Hillis v. Heineman*, 626 F.3d 1014, 1019 (9th Cir. 2010).

In any event, the argument lacks merit. Section 4(b)(4) includes the general APA requirement that agencies consider matters presented in the rulemaking process. 5 U.S.C. § 553(c); 16 U.S.C. § 1533(b)(4). Alaska has not contested the ruling that NMFS's responses satisfied the requirements of Section 4(i). That standard is at least as demanding as the notice-and-comment requirements. Indeed, Alaska has argued that Section 4(i) "requires more than the APA notice-and-comment procedures." USSER23. Thus, responses sufficient to satisfy Section 4(i) were sufficient to satisfy Section 4(b)(4).

CONCLUSION

For the foregoing reasons, the judgment of the district court should be reversed.

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CERTIFICATE OF COMPLIANCE

I hereby certify that this reply brief complies with the requirements of Fed. R. App. P. 32(a)(5) and (6) because it has been prepared in 14-point Georgia, a proportionally spaced font. I further certify that this brief complies with the type-volume limitation of Fed. R. App. P. 32(a)(7)(B) because it contains 6466 words, excluding the parts of the brief exempted under Rule 32(a)(7)(B)(iii), according to the count of Microsoft Word.

s/ Katherine W. Hazard

CERTIFICATE OF SERVICE

I hereby certify that on October 20, 2017, I electronically filed the foregoing reply brief with the Clerk of the Court for the United States Court of Appeals for the Ninth Circuit by using the appellate CM/ECF system. The participants in the case are registered CM/ECF users and service will be accomplished by the appellate CM/ECF system.

s/Katherine W. Hazard