III. THE ENDANGERED SPECIES ACT

Scientists have long argued that climate change will cause species to migrate as habitat and other biological needs change in response to increasing water and atmospheric temperatures, changes in salinity of estuaries, changes in precipitation and snow pack, and increases in pests, among many other factors. *See* Chapter 1. Climate change will have profound, long-lasting impacts on species. The challenge for wildlife managers is anticipating how climate change will affect specific species:

> [N]ew climates are expected to cause ecosystem reshuffling as individual species, constrained by different environmental factors, respond differently. One tree may be limited by summer rains that hold back seedling recruitment, for instance, whereas another species may be limited by winter freezes that control insect pests. Some species may migrate up-latitude or up-elevation, while others may stay put. An ecosystem may see many species vanish — but also new arrivals.

Douglas Fox, *Back to the No-Analog Future?*, 316 SCIENCE 823, 823 (2007).

Unable to adapt quickly enough to changing conditions, some species may become endangered or even extinct. Some species may simply run out of room. The pika, an inhabitant of cold, high-altitude mountaintops, eventually may be unable to climb any higher to avoid rising mountain temperatures. Other species may have their habitat literally vanish beneath their feet. Polar bears and some species of seals, for example, rely on floating ice to hunt. With the decline of ice in the Arctic, the future of these species is uncertain.

As populations of some species have declined due to climate change, advocates have turned to the U.S. Endangered Species Act (ESA), 16 U.S.C. §§ 1531–1544, to protect species from the adverse impacts of climate change. In response to petitions from environmental organizations, the U.S. Fish & Wildlife Service (FWS) has listed various species as threatened or endangered in part due to climate change. Early on, FWS listed elkhorn and staghorn corals as threatened species. More recently, FWS and the National Marine Fisheries Service (NMFS) have listed the polar bear and several marine mammals as threatened or endangered. As increasing numbers of species end up on the ESA lists, questions arise about the role the ESA can play in protecting species from the consequences of climate change. Section A introduces the main provisions of the ESA before Section B considers how the ESA may help protect polar bears — which have become iconic symbols in climate change advocacy — and other species from the effects of climate change.

A. Introduction to the ESA

Through the ESA, Congress wished "to halt and reverse the trend towards species extinction, whatever the cost." TVA v. Hill, 437 U.S. 153 184 (1978). To that end, the ESA establishes a framework for conserving species listed as endangered or threatened. An endangered species is "any species which is in danger of extinction throughout all or a significant portion of its range" other than insects considered to be pests. 16 U.S.C. § 1532(6). A "threatened species" is "any

species which is likely to become an endangered species within the foreseeable." 16 U.S.C. § 1532(20). The Secretary of Interior, through FWS, administers the ESA for terrestrial and freshwater species, as well as polar bears, dugongs, walruses, and sea otters. The Department of Commerce, through the National Marine Fisheries Service (NMFS), administers the ESA for most marine species, including whales, dolphins, seals, and anadromous fish, such as salmon. *See* 50 C.F.R. § 402.01.

The ESA offers a range of measures that may help conserve listed species: designation of "critical habitat," a prohibition against taking, consultation to ensure that federal actions do not jeopardize the continuing survival of endangered or threatened species or adversely affect critical habitat, and recovery planning. FWS and NMFS (collectively, the Services) have used these obligations to protect more than 1100 endangered or threatened animal and plant species. Although "few species brought under the ESA's protection have recovered to full health, the ESA is credited with preventing the vast majority of protected species from ultimate extinction." J.B. Ruhl, *Climate Change and the Endangered Species Act: Building Bridges to the No-Analog Future*, 88 B.U.L. REV. 1, 5 (2008).

1. *Species Listings*

For a species to receive protection under the ESA, it must be listed as endangered or threatened. The Services list species based on an assessment of five factors: (A) the present or threatened destruction, modification, or curtailment of its habitat or range; (B) overutilization for commercial, recreational, scientific, or educational purposes; (C) disease or predation; (D) the inadequacy of existing regulatory mechanisms; or (E) other natural or manmade factors affecting its continued existence. 16 U.S.C. § 1533(a). In deciding whether these factors justify listing a species, the Services must make their determinations "solely on the basis of the best scientific and commercial data available." *Id.* at § 1533(b).

2. *Prohibition against "Taking"*

Section 9 of the ESA prohibits the "take" of endangered species. 16 U.S.C. § 1538. The ESA defines "take" to mean "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or to attempt to engage in any such activity." 16 U.S.C. § 1532(19). The ESA also prohibits "harm" to endangered species, including "significant habitat modification or degradation." 50 C.F.R. § 17.2; *see also* Babbitt v. Sweet Home Chapter of Communities for a Great Oregon, 515 U.S 687 (1995). Section 9 further prohibits the import, export, possession, and sale, among other things, of endangered species. While the ESA itself only prohibits the take of endangered species, regulations apply the prohibition against taking to threatened species unless the Secretary adopts a special rule. *See* 16 U.S.C. § 1533(d), 50 C.F.R § 17.31, 50 C.F.R. §§ 17.40-17.48 (special rules).

The ESA also includes a number of exceptions to the take prohibition. Section 10 allows the take of listed species by non-federal property owners or as a consequence of a federally operated or permitted project, provided that the take is incidental to carrying out an otherwise lawful activity and the landowner or relevant agency develops an approved Habitat Conservation Plan. The ESA also allows takes for scientific purposes, to enhance the propagation or survival of the

species, zoological exhibitions, educational purposes, or special purposes consistent with the purposes of the ESA. 16 U.S.C. § 1539.

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3. *Designation of Critical Habitat*

The ESA requires the Services "to the maximum extent prudent and determinable," to designate critical habitat at the time a species is listed as endangered or threatened. 16 U.S.C. § 1533(a)(3). "Critical habitat" includes those geographical areas, within the jurisdiction of the United States, occupied by the species that contain the essential physical and biological features necessary for the survival and recovery of the species. It also includes areas outside the current range of the species if that habitat is essential to the conservation of the species. 16 U.S.C. §§ 1532(3), 1532(5)(A).

When the Services designate critical habitat, they must "tak[e] into consideration the economic impact" of designating any particular area as critical habitat. The Services may refuse to designate critical habitat if the benefits of exclusion outweigh the benefits of designating the area. However, they may not refuse to designate an area if they determine, based on the "best scientific and commercial data available, that the failure to designate such area as critical habitat will result in the extinction of the species." 16 U.S.C. § 1533(b)(2).

The ESA implementing regulations provide that designation of critical habitat is not prudent when one or both of the following situations exist: (1) the species is threatened by taking or other activity and the identification of critical habitat can be expected to increase the degree of threat to the species, or (2) such designation of critical habitat would not be beneficial to the species. The regulations further provide that that critical habitat is not determinable when one or both of the following situations exist: (1) information sufficient to perform required analysis of the impacts of the designation is lacking, or (2) the biological needs of the species are not sufficiently well known to permit identification of an area as critical habitat. 50 C.F.R. § 424.12(a). If none of these situations exist and FWS or NMFS designates critical habitat, it becomes subject to the consultation provisions described below.

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4. *Consultation and the Duty to Avoid Jeopardy*

Section 7 of the ESA directs each federal agency to insure that its actions are "not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of [critical] habitat." 16 U.S.C. § 1536 (a)(2). Whereas "jeopardy" focuses on the effect of the agency action on survival and recovery of the listed species, "adverse modification" addresses the effects of the action on critical habitat. Sierra Club v. U.S. Fish & Wildlife Service, 245 F.3d 434, 441 (2001).

To effectuate this duty, the ESA requires the "action" agency to consult with an "expert" agency (FWS or NMFS) to evaluate the effects a proposed agency action may have on listed species. 16 U.S.C. § 1536(a)(2). If the action agency determines through preparation of a biological assessment or informal consultation that the proposed action is "not likely to adversely

effect" listed species or critical habitat, the action agency can avoid formal consultation so long as the FWS or NMFS concurs. 50 C.F.R. § 402.14(b). If, however, the action agency determines that the proposed action "may affect" a listed species or its critical habitat, it must formally consult with the relevant Service. 50 C.F.R. § 402.14(a); *see also* Bennett v. Spear, 520 U.S. 154, 158 (1997).

The final product of a formal consultation is a biological opinion ("BiOp") setting forth the Service's conclusions regarding jeopardy and adverse modification. 16 U.S.C. § 1536(a)(2). In the biological opinion, the FWS or NMFS must evaluate the effects of the proposed action on the survival of species and any potential destruction or adverse modification of critical habitat, based on "the best scientific and commercial data available." *Id*. The biological opinion must include a summary of the information upon which the opinion is based, a discussion of the effects of the action on listed species or critical habitat, and the Service's opinion on whether the action is likely to cause jeopardy or adverse modification." 50 C.F.R.§ 402.14(h(3). In making its jeopardy determination, the FWS or NMFS must evaluate "the current status of the listed species or critical habitat," the "effects of the action," and "cumulative effects." *Id*. § 402.14(g)(2)–(3). "Effects of the action" include both direct and indirect effects of an action "that will be added to the environmental baseline." *Id*. § 402.02. The environmental baseline includes "the past and present impacts of all Federal, State or private actions and other human activities in the action area" and "the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early Section 7 consultation." *Id.* Ultimately, the action agency hopes to receive a biological opinion that (1) concludes the activity will not cause jeopardy or adverse modification or (2) identifies "reasonable and prudent alternatives" to the proposed action that will avoid jeopardy and adverse modification. The biological opinion will also often include an "Incidental Take Statement" which, if followed, exempts the action agency from Section 9's prohibition on takings. 16 U.S.C. § 1536(b)(3)–(4).

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5. *Recovery Plans*

The ESA requires the development of a recovery plan for a listed species designed to improve the status of the species to the point at which listing under the ESA is no longer necessary. 16 U.S.C. § 1533(f), 50 C.F.R. § 402.02. A recovery plan is not required, however, where "such a plan will not promote the conservation of the species." 16 U.S.C. § 1533(f). A recovery plan establishes a framework to coordinate activities among various Federal, state, and private parties for the conservation of a listed species. The recovery plans must include, to the maximum extent practicable:

> (i) a description of such site-specific management actions as may be necessary to achieve the plan's goal for the conservation and survival of the species;
>
> (ii) objective, measurable criteria which, when met, would result in a determination, in accordance with the provisions of this section, that the species be removed from the list; and

> (iii)estimates of the time required and the cost to carry out those measures needed to achieve the plan's goal and to achieve intermediate steps toward that goal.

16 U.S.C. § 1533(f)(1)(B).

Because of the wide variety of measures that help conserve a species, the ESA does not mandate the use of specific conservation strategies. However, courts have said that the ESA requires "the identification of management actions necessary to achieve the Plan's goals for the conservation and survival of the species. A recovery plan that recognizes specific threats to the conservation and survival of a threatened or endangered species, but fails to recommend corrective action or explain why it is impracticable or unnecessary to recommend such action, would not meet the ESA's standard." The Fund for Animals v. Babbitt, 903 F. Supp. 96, 108 (D.D.C. 1995). In addition, "[s]ince the same five statutory factors must be considered in delisting as in listing, . . . the FWS, in designing objective, measurable criteria, must address each of the five statutory delisting factors and measure whether threats to the [listed species] have been ameliorated." *Id.* at 111. Moreover, while FWS need not specify a "time certain" for completion of certain measures in a recovery plan, it must provide estimates of when recovery measures will be completed. Defenders of Wildlife v. Babbitt, 130 F. Supp. 121 (D.D.C. 2001).

Each of the three elements of a recovery plan must be undertaken "to the maximum extent practicable." This gives FWS and NMFS discretion to articulate a satisfactory explanation as to why they cannot practicably incorporate objective criteria into a recovery plan. While this discretion is not "unbridled," it "is not necessary for a recovery plan to be an exhaustively detailed document." *Fund for Animals*, 803 F. Supp. at 107.

B. Climate Change and the ESA: The Polar Bear Saga and Implications for Other Species

The ESA's mandatory duties to conserve threatened and endangered species have made it an attractive option for advocates seeking to protect species from climate change. In fact, on February 16, 2005, the Center for Biological Diversity, later joined by Greenpeace and the Natural Resources Defense Council, petitioned FWS to list the polar bear (*Ursus maritimus*) as a threatened species under the ESA. More than three years later, on May 15, 2008, FWS issued its final rule designating the polar bear as threatened. FWS, Final Rule, Determination of Threatened Status for the Polar Bear (*Ursus maritimus*) Throughout Its Range, 73 Fed. Reg. 28,212, 28,213–14 (May 15, 2008)[hereinafter Polar Bear Listing Determination]. Even before FWS listed the polar bear, however, it had listed other species as endangered or threatened due, in part, to climate change. Since then, FWS and NMFS have listed or considered listing other species due to climate change. For example, in November 2012, NMFS proposed to list 12 coral species as endangered and another 54 as threatened due to rising ocean temperatures, ocean acidification, and other factors. In December 2012, it listed bearded seals and ringed seals as threatened due to loss of their ice habitat.

But how well adapted is the ESA to climate change? To gain insight into that question, this section reviews the plight of the polar bear and the implications of FWS's decision to designate it as a threatened species. As you read, consider the following questions:

- Should the agencies list species that may suffer from future climate change-related habitat loss? Is so, what timeframe should they apply in considering a species' risk of extinction?

- Does driving a CO_2-emitting car, which contributes to climate change and melting sea ice, constitute a "take" of polar bears, a species almost completely dependent on sea ice?

- For which projects should FWS consult? Does Section 7 require consultation to ensure that a new federally permitted coal-fired power plant in Kentucky does not jeopardize polar bears?

- Does either the take prohibition or the no jeopardy requirement mandate reductions in U.S. greenhouse gas emissions?

- What elements would you include in a recovery plan to protect polar bears and other species from the effects of climate change?

1. *Melting Ice and the Polar Bear's Decline*

Polar bears are almost completely dependent on ice. Indeed, in some languages, they are called "ice bears." Polar bears depend on sea ice for a wide variety of essential purposes. They use sea ice as a platform from which to hunt and feed upon seals. They use sea ice to seek mates and breed. They use sea ice as a platform to move to terrestrial maternity denning areas and for maternity denning. They also use sea ice to make long-distance movements. FWS, Polar Bear Listing Determination, 73 Fed. Reg. at 28,213–14. Polar bears are so dependent on sea ice that "[o]ver most of their range, polar bears remain on the sea ice year-round or spend only short periods on land." *Id*. at 28,213. In some regions, polar bears migrate as much as 1,000 km (621 mi) to stay with the pack ice. *Id*.

Sea ice is melting. Since 1978, scientists have documented an overall downward trend in Arctic sea ice extent (the area of the ocean with at least 15 percent ice coverage) and area (the sum of areas actually covered by sea ice). They also report that sea ice is melting more rapidly than before. For example, the FWS's Polar Bear Determination of Threatened Status reports a decrease in summer sea ice extent of 4.5 percent per decade based on trends for late 1978 through the end of 1996. The rate of loss increased to 6.7 percent per decade when using data from 1981 to 2000. Two more recent studies, using data up to 2005 and 2006, respectively, found declines in sea ice extent up to 9.8 percent and 9.1 percent per decade. *Id*. at 28,221.

Similarly, the area of Arctic sea ice is also declining. In fact, it reached a historic low of 3.41 million sq km (1.32 million sq mi) in September 2012, almost 300,000 square miles less than the previous lowest extent set in September 2007. Moreover, this record differed from previous lows because it covered the entire Arctic Basin, not only certain sectors (North Atlantic,

Beaufort/Bering Sea, etc.). NASA, Arctic Sea Ice Hits Smallest Extent in Satellite Era (Sept. 19, 2012), at http://www.nasa.gov/topics/earth/features/2012-seaicemin.html.

Sea ice is also melting earlier than in the past. In 2005, for example, the melt season arrived approximately 17 days before the mean melt onset date. As a result of the longer melt season, the ice pack is breaking up earlier and reforming later, shortening the overall length of the "ice season." The length of the melt season is increasing at a rate of approximately 13.1 days per decade. Polar Bear Listing Determination, at 28,223.

Sea ice declines can be attributed to three conflated factors: warming, atmospheric changes (including circulation and clouds), and changes in oceanic circulation. Average Arctic temperatures have been increasing at almost twice the rate of the rest of the world in the past 100 years. Changing wind patterns are increasing ice motion and ice divergence, which increases the energy needs for the ice to reform. Warmer Atlantic Ocean water is also entering the Arctic Ocean, causing a reduction in sea ice. *Id*. at 28,224–25.

The loss of sea ice then accentuates the sea-ice albedo effect: "The sea-ice albedo feedback effect is the result of a reduction in the extent of brighter, more reflective sea ice or snow, which reflects solar energy back into the atmosphere, and a corresponding increase in the extent of darker, more absorbing water or land that absorbs more of the sun's energy. This greater absorption of energy causes faster melting, which in turn causes more warming, and thus creates a self-reinforcing cycle or feedback loop that becomes amplified and accelerates with time." *Id*. at 28,225.

In the IPCC's Fourth Assessment, all scenarios predict much less ice in the future, with longer melt seasons and shorter ice seasons. Looking at this data, some scientists anticipated that Arctic sea ice is in a "downward spiral" that will cause ice-free September conditions as early as 2030. Press Release, National Snow and Ice Data Center, Arctic Sea Ice Shatters All Previous Record Lows (Oct. 1, 2007). Since then, Arctic sea ice has melted faster and more extensively than the IPCC predicted, leading to predictions that the Arctic will have ice-free summers much sooner — perhaps as early as 2020. NOAA. Arctic Nearly Free of Summer Sea Ice during First Half of 21st Century (Apr. 12, 2013), at http://www.nasa.gov/topics/earth/features/2012-seaicemin.html.

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2. *The Polar Bear Listing*

The global population of polar bears is estimated to be 20,000 to 25,000 and distributed in 19 relatively discrete populations throughout most ice-covered seas in Russia, Norway, Greenland (Denmark), Canada, and the United States (in the Chukchi and Beaufort Seas in Alaska). Most individual populations of polar bears number between 1,500 and 2,500 individuals. In its listing determination, FWS described a large number of reasons why it expects polar bear populations to decline as a result of diminishing sea ice. The following merely summarizes these conclusions:

FWS, POLAR BEAR LISTING DETERMINATION

73 Fed. Reg. at 28,253, 28,292–93

In the context of the Act, the term "endangered species" means any species or subspecies or, for vertebrates, Distinct Population Segment (DPS), that is in danger of extinction throughout all or a significant portion of its range, and a "threatened species" is any species that is likely to become an endangered species within the foreseeable future. [Although the ESA does not define the term "foreseeable future," the FWS defined it for polar bears as 45 years (three generations). It reached its conclusion based on an assessment by polar bear specialists, the life-history and population dynamics of polar bears, and documented projected changes in sea ice. The FWS also considered this time frame as "long enough to take into account multi-generational population dynamics, natural variation inherent with populations, environmental and habitat changes, and the capacity for ecological adaptation."]

Under Factor A ("Present or Threatened Destruction, Modification, or Curtailment of its habitat or range"), we have determined that ongoing and projected loss of the polar bear's crucial sea ice habitat threatens the species throughout all of its range. Productivity, abundance, and availability of ice seals, the polar bear's primary prey base, would be diminished by the projected loss of sea ice, and energetic requirements of polar bears for movement and obtaining food would increase. Access to traditional denning areas would be affected. In turn, these factors would cause declines in the condition of polar bears from nutritional stress and reduced productivity. As already evidenced in the Western Hudson Bay and Southern Beaufort Sea populations, polar bears would experience reductions in survival and recruitment rates. The eventual effect is that polar bear populations would decline. The rate and magnitude of decline would vary among populations, based on differences in the rate, timing, and magnitude of impacts. However, within the foreseeable future, all populations would be affected, and the species is likely to become in danger of extinction throughout all of its range due to declining sea ice habitat.

Under Factor B ("Overutilization for Commercial, Recreational, Scientific, or Educational Purposes") we note that polar bears are harvested in Canada, Alaska, Greenland, and Russia, and we acknowledge that harvest is the consumptive use of greatest importance and potential effect to polar bear. . . . While overharvest occurs for some populations, laws and regulations for most management programs have been instituted to provide sustainable harvests over the long term. . . . We also acknowledge that increased levels of bear-human encounters are expected in the future and that encounters may result in increased mortality to bears at some unknown level. Adaptive management programs, such as implementing polar bear patrols, hazing programs, and efforts to minimize attraction of bears to communities, to address future bear-human interaction issues, including on-the-land ecotourism activities, are anticipated.

Harvest is likely exacerbating the effects of habitat loss in several populations. In addition, continued harvest and increased mortality from bear-human encounters or other forms of mortality may become a more significant threat factor in the future, particularly for populations experiencing nutritional stress or declining population numbers as a consequence of habitat change. Although harvest, increased bear-human interaction levels, defense-of-life take, illegal take, and take associated with scientific research live-capture programs are occurring for several

populations, we have determined that overutilization does not currently threaten the species throughout all or a significant portion of its range.

Under Factor C ("Disease and Predation") we acknowledge that disease pathogens are present in polar bears; no epizootic outbreaks have been detected; and intra-specific stress through cannibalism may be increasing; however, population level effects have not been documented. Potential for disease outbreaks, an increased possibility of pathogen exposure from changed diet or the occurrence of new pathogens that have moved northward with a warming environment, and increased mortality from intraspecific predation (cannibalism) may become more significant threat factors in the future for polar bear populations experiencing nutritional stress or declining population numbers. We have determined that disease and predation (including intraspecific predation) do not threaten the species throughout all or a significant portion of its range.

Under Factor D ("Inadequacy of Existing Regulatory Mechanisms"), we have determined that existing regulatory mechanisms at the national and international level are generally adequate to address actual and potential threats to polar bears from direct take, disturbance by humans, and incidental or harassment take. We have determined that there are no known regulatory mechanisms in place at the national or international level that directly and effectively address the primary threat to polar bears—the rangewide loss of sea ice habitat within the foreseeable future.

We acknowledge that there are some existing regulatory mechanisms to address anthropogenic causes of climate change, and these mechanisms are not expected to be effective in counteracting the worldwide growth of GHG emissions in the foreseeable future.

Under Factor E ("Other Natural or Manmade Factors Affecting the Polar Bear's Continued Existence") we reviewed contaminant concentrations and find that, in most populations, contaminants have not been found to have population level effects. We further evaluated increasing levels of ecotourism and shipping that may lead to greater impacts on polar bears. The extent of potential impact is related to changing ice conditions, polar bear distribution changes, and relative risk for a higher interaction between polar bears and ecotourism or shipping. Certain factors, particularly contaminants and shipping, may become more significant threats in the future for polar bear populations experiencing declines related to nutritional stress brought on by sea ice and environmental changes. We have determined, however, that contaminants, ecotourism, and shipping do not threaten the polar bear throughout all or a significant portion of its range.

On the basis of our thorough evaluation of the best available scientific and commercial information regarding present and future threats to the polar bear posed by the five listing factors under the Act, we have determined that the polar bear is threatened throughout its range by habitat loss (i.e., sea ice recession). We have determined that there are no known regulatory mechanisms in place at the national or international level that directly and effectively address the primary threat to polar bears — the rangewide loss of sea ice habitat. We have determined that overutilization does not currently threaten the species throughout all or a significant portion of its range, but is exacerbating the effects of habitat loss for several populations and may become a more significant threat factor within the foreseeable future. We have determined that disease and

predation, in particular intraspecific predation, and contaminants do not currently threaten the species throughout all or a significant portion of its range, but may become more significant threat factors for polar bear populations, especially those experiencing nutritional stress or declining population levels, within the foreseeable future.

Although FWS's determination did not attempt to pinpoint a date by which a certain number of polar bears would remain, in an earlier report the U.S. Geological Service (USGS) estimated that two-thirds of the world's polar bears will be gone by 2050. In making its projection, the USGS emphasized that because all climate models have so far underestimated the actual observed sea-ice loss, the assessment of risk to the polar bear may be conservative. Steven Amstrup, et al., *Forecasting the Range-wide Status of Polar Bears at Selected Times in the 21st Century* 2 (2007). The Center for Biological Diversity challenged the listing decision on that basis, arguing that FWS should have listed the polar bear as endangered. Other groups, including the Safari Club and California Cattlemen's Association (called the "Joint Plaintiffs" in the case below), sought invalidation of the decision. Consider the court's response to the Joint Plaintiffs' arguments.

IN RE POLAR BEAR ENDANGERED SPECIES ACT LISTING AND §4(d) RULE LITIGATION

794 F. Supp. 2d 65, 104–06 (D.D.C. 2011)

First, Joint Plaintiffs contend that the polar bear did not warrant listing under the ESA at the time of listing because the administrative record shows "tremendous uncertainty" about the nature and extent of future global climate change and the impact of any such change on the Arctic ecosystem and on the polar bear. Specifically, Joint Plaintiffs point to a 2007 "Uncertainty Report" from the administrative record, which notes that "uncertainty in projections of Arctic climate change is relatively high" as a consequence of its smaller spatial scale and high sensitivity to climate change impacts and the complex processes that control ice development. Further, Joint Plaintiffs note that the IPCC reports themselves, which are widely acknowledged to be the definitive source of modern climate change knowledge, indicate that complex systems like the Arctic are "inherently unpredictable" and have "high scientific uncertainties," which range from "inadequate scientific understanding of the problem, data gaps and general lack of data to inherent uncertainties of future events in general." This inherent uncertainty, according to Joint Plaintiffs, is compounded by the predictive nature of the USGS forecasting reports, which attempt to forecast sea ice conditions up to 100 years into the future on the basis of mathematical modeling that cannot replicate the complex Arctic system.

Joint Plaintiffs contend that FWS failed to explain how, despite the high degree of uncertainty in climate science, it nonetheless found that polar bears are "likely" to be in danger of extinction within the foreseeable future. According to Joint Plaintiffs, the uncertainty surrounding future climate change impacts should have prevented FWS from being able to discern any such trend with confidence

The federal defendants respond that Joint Plaintiffs' arguments must fail as a matter of law because they incorrectly assume that scientific certainty (or even a "high degree" of certainty) is required before the Service may list a species as threatened under the ESA. * * *

The federal defendants further respond that Joint Plaintiffs have overstated the uncertainty of climate change science. . . . According to the federal defendants, uncertainties surrounding climate change impacts did not prevent the Service from making a credible assessment of the likely direction and magnitude of those impacts, even if it was not possible to make such predictions with precision.

Having considered the parties' arguments, the Court agrees with the federal defendants. Joint Plaintiffs' claim boils down to an argument that the available data were not certain enough to adequately support the outcome of the agency's listing decision for the polar bear. It is well-settled in the D.C. Circuit that FWS is entitled — and, indeed, required — to rely upon the best available science, even if that science is uncertain or even "quite inconclusive." The "best available science" requirement merely prohibits FWS from disregarding available scientific evidence that is better than the evidence it relied upon. *Id.* (citing *City of Las Vegas v. Lujan,* 891 F.2d 927, 933 (D.C. Cir. 1989)); *see also Building Indus. Ass'n of Superior Cal. v. Norton,* 247 F.3d 1241, 1246 (D.C. Cir. 2001) ("Assuming the studies the Service relied on were imperfect, that alone is insufficient to undermine those authorities' status as the 'best scientific . . . data available'. . . . [T]he Service must utilize the 'best scientific . . . data *available,*' not the best scientific data *possible.*"). Joint Plaintiffs have pointed to no information that was superior to the IPCC AR4 reports at the time the agency made its listing decision. The Court declines to find that it was arbitrary for the agency to rely upon what were generally accepted to be the best available climate change data at the time the agency made its listing decision, particularly when the agency also took steps to reduce uncertainty to the extent feasible.

QUESTIONS AND DISCUSSION

1. ***Deference to the Agencies.*** Courts tend to give agencies considerable deference in reviews of ESA listing decisions. This deference arises, in part, because listing decisions ultimately involve scientific determinations to which courts afford strong deference. Unless a party can show an agency's conclusion lacked support in the administrative record, a court will typically uphold the agency's decision to list or not list a species. Thus, the Joint Plaintiffs had an uphill battle in their challenge.

2. ***Latent Climate Change Injuries and Listing Decisions.*** Other listing decisions have raised the question of whether agencies must consider future climate change injuries when deciding whether to place species on the endangered or threatened lists. Recall that a species is threatened when it "is likely to become an endangered species *within the foreseeable future*." 16 U.S.C. § 1532(20) (emphasis added). In *Center for Biological Diversity v. Lubchenco*, the district court upheld NMFS' decision to not list the ribbon seal as threatened, when the agency decided to consider risks of climate change only up through the year 2050. F. Supp. 2d 945 (N.D. Cal. 2010). NMFS argued, and the court accepted, that the scientific evidence of risks after that date was too unreliable to factor into the agency's decision. *Id.* FWS drew a similar line when it

refused, based on post-2050 climate change risks, to list the American pika as threatened or endangered. 75 Fed. Reg. 6,438 (Feb. 9, 2010). Does the agencies' line-drawing make sense?

3. ***When is Climate Change Relevant to Listing Decisions?*** Climate change may not always be a relevant factor in listing decisions. In *Colorado River Cutthroat Trout v. Salazar*, the district court refused to require FWS to consider climate change in its listing decision, noting, "[t]here is no statutory requirement that the FWS discuss climate change in its listing decisions, and the Court is reluctant to impose a judicially-created requirement where, as here, climate change is not discussed at length in the record, where the issue was not raised by plaintiffs in their comments to the FWS, and where the record is ambivalent as to its effects." 2012 U.S. Dist. LEXIS 148343 (D.D.C. Oct. 16, 2012). However, this does not mean agencies can ignore climate change entirely. For example, FWS attempted to disregard climate change when it sought to remove Yellowstone grizzly bears from the list of threatened species. 72 Fed. Reg. 14,866 (Mar. 29, 2007). In its delisting decision, the agency found that although climate change contributed to the decimation of the whitebark pine — a primary food source for grizzlies — a decrease in the number of whitebark pine would not threaten the survival of the bears. The court invalidated the decision:

> As to climate change, the Rule refers to "a general consensus among the world's best scientists that climate change is occurring" and points out that "[t]he magnitude of warming in the northern Rocky Mountains has been particularly great." According to the Rule, "[t]he most substantial way in which changing climate conditions may affect whitebark pine is through outbreaks of native mountain pine beetles that might not continue to be regulated by extremely cold winters, and an increased prevalence of white pine blister rust. Thus, "a changing climate may shift the overall distribution of whitebark pine north and higher in elevation, resulting in local extinction and reduced overall distribution in the GYA." * * *
>
> [T]he Rule repeatedly acknowledges a "well-documented association" between reduced whitebark pine seed abundance and increased grizzly mortality. In short, when whitebark pine seeds are scarce, grizzlies range more widely in search of food, and contacts between bears and humans increase substantially. . . . The Rule also reports that pine seed unavailability can result in reduced female reproductive success.
>
> Based on the evidence of a relationship between reduced whitebark pine seed availability, increased grizzly mortality, and reduced grizzly reproduction, it is logical to conclude that an overall decline in the region's whitebark pine population would have a negative effect on its grizzly bear population. The Service advances several rationales in the Rule to support its conclusion that food shortages caused by whitebark pine declines are nonetheless "not a threat" to the Yellowstone grizzly. Below, we explain why we find all of them lacking.
>
> First, the Service points out that grizzlies "are notoriously resourceful omnivores that will make behavioral adaptations regarding food acquisition."

> While this uncontroversial assertion is adequately supported by science, it fails to address the heart of the threat that whitebark pine loss poses to the bears: increased proximity to humans when bears do adapt to seed shortages by seeking substitute foods. As the Rule itself recognizes just a few paragraphs later, "[t]he potential threat from decreases in whitebark pine cone production is not one of starvation, but one of larger home range size and movements," which "may result in increased conflicts with humans and increased mortality, as well as lower reproductive success the following year as females produce smaller litters." That the bears are likely to seek alternate foods in the face of whitebark pine decline is a part of the problem, not an answer to it.
>
> Second, the Service suggests that, even if there is a link between whitebark pine seed unavailability and individual mortality, there is no indication that the grizzly population will be negatively affected by seed shortages, because it has increased over the past three decades despite the fact that whitebark pine cone production has "varied dramatically" from year to year. . . . The problem with this rationale is that the study on which the Service relied to demonstrate long-term grizzly population growth included data only until 2002, before the "epidemic of mountain pine beetles" began to kill the region's whitebark pines. * * *

Greater Yellowstone Coalition, Inc. v. Servheen, 665 F.3d 1015 (9th Cir. 2011). What do you think of the court's decision? Did the court adequately defer to FWS's scientific judgment? Were you surprised by the interrelationship between climate change, the bear's food source, and the actual threat (human contact) it faces?

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3. *Can the ESA Save Species from Climate Change?*

A decision to list a species as threatened or endangered is merely a precursor to other regulatory actions that could potentially protect species from further decline or set them on a path toward recovery. Yet, each subsequent regulatory action, from critical habitat designation to recovery planning, raises questions of whether the ESA can protect species from climate change.

a. *Critical Habitat Designation*

The designation of critical habitat, especially critical habitat currently outside a species' range, may provide a crucial tool to allow wildlife to adapt to climate change. Many species will shift their ranges as they respond to climate and climate-caused ecological changes, and critical habitat designation could provide them with suitable, protected habitat to occupy. However, critical habitat designations generate controversy because they may make lands unavailable for resource extraction, development, and other economic uses. For this reason, FWS and NMFS have often delayed critical habitat designations.

In the case of polar bears, FWS early on identified in general terms the essential habitat features for the polar bear: annual and perennial marine sea ice habitats that serve as a platform for hunting, feeding, traveling, resting, and to a limited extent, denning; and terrestrial habitats

used by polar bears for denning and reproduction, as well as for seasonal use in traveling or resting. Nonetheless, FWS initially declined to designate critical habitat:

> [T]he identification of specific physical and biological features and specific geographic areas for consideration as critical habitat is complicated, and the future values of these habitats may change in a rapidly changing environment. Arctic sea ice provides a platform for critical life-history functions, including hunting, feeding, travel, and nuturing *(sic)* cubs. That habitat is projected to be significantly reduced within the next 45 years, and some models project complete absence of sea ice during summer months in shorter timeframes.
>
> A careful assessment of the designation of marine areas as critical habitat will require additional time to fully evaluate physical and biological features essential to the conservation of the polar bear and how those features are likely to change over the foreseeable future. In addition, near-shore and terrestrial habitats that may qualify for designation as critical habitat will require a similar thorough assessment and evaluation in light of projected climate change and other threats. Additionally, we have not gathered sufficient economic and other data on the impacts of a critical habitat designation. These factors must be considered as part of the designation procedure. Thus, we find that critical habitat is not determinable at this time.

FWS, Polar Bear Listing Determination, 73 Fed. Reg. at 28,298. Two years later, however, the agency reversed course and issued a final rule designating 187,157 square miles of critical habitat in Alaska and adjacent territorial and U.S. waters. 75 Fed. Reg. 76086 (Dec. 7, 2010). Several parties, including the Alaska Oil and Gas Association, the American Petroleum Institute, several Native Alaskan Corporations, and the State of Alaska, then challenged the designation. Alaska Oil & Gas Ass'n v. Salazar, 3:11-CV-0025-RRB, __ F. Supp.2d __ (D. Alaska Jan. 11, 2013). Their lawsuit alleged, in essence, that the critical habitat designation was unnecessary because it would not benefit the polar bear, and overly broad because it applied to too much territory. Although the court rejected many of the arguments, it did agree with the plaintiffs regarding some of the issues raised.

To understand the excerpted decision, it helps to have a bit more detail about critical habitat designation. Under the ESA, critical habitat includes

> (i) the specific areas within the geographical area occupied by the species, at the time it is listed . . . on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management conditions; and
>
> (ii) specific areas outside the geographical area occupied by the species at the time it is listed . . . upon a determination that such areas are essential for the conservation of the species.

16 U.S.C. § 1532(5)(A). These definitions indicate that FWS may designate both areas occupied

by the species at the time it was listed as threatened or endangered and unoccupied areas that are "essential for the conservation of the species." *Id.* To designate occupied areas, FWS must show they include physical or biological features that are essential to the conservation of the species and which may require special management conditions. These physical or biological features are called primary constituent elements (PCEs). 50 C.F.R. § 424.12(b). They may include

> (1) Space for individual and population growth, and for normal behavior;
>
> (2) Food, water, air, light, minerals, or other nutritional or physiological requirements;
>
> (3) Cover or shelter;
>
> (4) Sites for breeding, reproduction, rearing of offspring, germination, or seed dispersal; and generally;
>
> (5) Habitats that are protected from disturbance or are representative of the historic geographical and ecological distributions of a species.

Id. In designating critical habitat, FWS will determine which of these features are essential for the conservation of the species and may require special management. It will then establish critical habitat based on that determination.

For the polar bear critical habitat designation, FWS determined that polar bears need two categories of physical and biological features: sea ice (for hunting, feeding, traveling, resting, and some denning), and terrestrial habitat (for denning and reproducing). 75 Fed. Reg. 76,086. It then designated three units of critical habitat: sea ice habitat, terrestrial denning habitat, and barrier island habitat. It also established a "no disturbance zone" around barrier island habitat. The plaintiffs challenged these determinations arguing, *inter alia*, that FWS had not demonstrated the designated critical habitat was "occupied" at the time of listing; FWS had not supported its inclusion of sea ice in the designated critical habitat; FWS had not demonstrated that physical and biological features required "special management considerations or protections; and FWS failed to adequately consult with Alaska or consider the economic impacts of the critical habitat designation. *Alaska Oil & Gas*, __ F. Supp.2d __. The court rejected all of these arguments. However, the court did agree with the plaintiffs that FWS failed to justify certain aspects of its critical habitat designation. As you read the excerpt below, consider how FWS could correct the errors the court identified.

ALASKA OIL AND GAS ASS'N. v. SALAZAR

3:11-CV-0025-RRB, __ F. Supp.2d __ (D. Alaska Jan. 11, 2013)

K. *The Service's designation does not comply with 16 U.S.C. § 1532(5)(A)(i).*

According to 16 U.S.C. § 1532(5)(A)(i), critical habitat for a threatened species comprises those "*specific areas* within the geographical area occupied by the species, at the time" the species is listed as threatened, "*on which are found those physical or biological features*" that are

"essential to the conservation of the species and which may require special management considerations or protection." * * *

1. The record lacks evidence of physical or biological features in Unit 2.

The Service states that "the terrestrial denning habitat PCE [primary constituent element] includes not just the specific areas where polar bears literally create dens, but also necessarily includes access to and from those den sites, freedom from disturbance, and space for sows to acclimatize newly emerged cubs." Despite having clearly defined the terrestrial denning habitat PCE, the Service has failed to show clear support in the record for all but one of the PCE features.

Although a reviewing court must be deferential to agencies and presume valid their actions, agencies must still show substantial evidence in the record and clearly explain their actions. Specifically, in order for an area to be designated as critical habitat, an agency must determine that the area actually contains physical or biological features essential for the conservation of the species. An agency cannot simply speculate as to the existence of such features.

The Service specifically defined the terrestrial habitat PCE, found in Unit 2, as being comprised of the following component parts: (1) den sites, "[s]teep, stable slopes (range 15.5–50.0°), with heights ranging from 1.3 to 34 m (4.3 to 111.6 ft), and with water or relatively level ground below the slope and relatively flat terrain above the slope"; (2) "unobstructed, undisturbed access between den sites and the coast"; (3) "sea ice in proximity of terrestrial denning habitat prior to the onset of denning during the Fall to provide access to terrestrial den sites"; and (4) "the absence of disturbance from humans and human activities that might attract other polar bears." The Service explained that each of these components is a physical or biological feature that had to be located, on a macro scale, within the whole of Unit 2 at the time of listing in order for the area to be designated as critical habitat. For example, the Service *did not* include in Unit 2 the terrestrial denning habitat in western Alaska because the area "lack[ed] the 'access via sea-ice' component of the terrestrial denning habit PCE that is *necessary for including in critical habitat.*" The Service clarified, however, that "[t]he fact that any single area may be suitable for only one of these functions does not mean that the designated area does not [as a whole] contain the features essential to polar bear denning." Thus, in order to be designated as critical habitat, the entirety of Unit 2 had to have located within it at least one of the above-mentioned features. The Service, however, fails to show, and the record does not contain, evidence of such features save the first and third (den[] sites and sea ice access), and support for the third feature is vague and confusing.

Unit 2 covers a section of northern Alaska that extends west from the United States–Canada border to the Kavik River and extends from the coast to 20 miles inland and then extends west from the Kavik River to the town of Barrow, Alaska and extends from the coast to five miles inland. * * *

Based *solely* on the location of the confirmed or probable den sites, the Service concluded that the whole of Unit 2 contained *all* of the physical or biological features necessary for the terrestrial denning habitat PCE. While the record evidence can be used to show the existence of

the first and maybe third of the necessary features, the evidence is entirely lacking in support for the second and fourth features outlined by the Service, namely "unobstructed, undisturbed access between den sites and the coast" and "the absence of disturbance from humans and human activities that might attract other polar bears."

The Service points to two other studies to show that all of the essential features were found in Unit 2, but such studies only confirm that the first feature is found in roughly one percent of the entire area designated. Thus, the Service has identified physical or biological features in approximately one percent of Unit 2, but fails to point to the location of any features in the remaining ninety-nine percent.

The Service's lack of evidence and explanation concerning the second and fourth features is especially stark concerning the inclusion of the areas around Deadhorse, Alaska, as such area is rife with humans, human structures, and human activity. The Service explains that while each portion of Unit 2 does not have to contain all of the four required features, "the Service *could* find that these areas adjacent to human activity provide access between den sites and the sea ice. . . ." By conceding that the Service included the areas around Deadhorse merely because the agency *could* find that such areas contained one of the four essential features, the Service suggests that it had not, at the time of listing or at the time of its briefing, established that *any* of the required features existed in such areas, thereby, violating the requirement that essential features be found in areas *before* designating them as critical habitat.

Even the support for the third feature is tenuous and in need of clarification: "The common feature[ ] in *many* of the dens in these areas w[as] the presence of sea ice within 16 km (10 mi) of the coast. . . ." The Service and the record fail to explain *which* dens are within ten miles of the coast and how close to the coast are the dens *not* within ten miles. * * *

The Service attempts to explain its lack of specificity regarding essential features in Unit 2 by claiming that "the Service cannot define and is not required to define a patchwork matrix of denning habitat on a micro scale. . . ." Regardless of the procedure used by the Service for its designation, the statute is clear: The *specific* areas designated as critical habitat *must* contain physical or biological features essential to the conservation of the species at the time of listing. Here, there is no way to know if ninety-nine percent of Unit 2 contains the essential features because there is no evidence in the record or cited by the Service that shows where such features are located. * * *

In short, the Service cannot designate a large swath of land in northern Alaska as "critical habitat" based entirely on one essential feature that is located in approximately one percent of the entire area set aside. . . .

[For similar reasons, the court rejected the FWS's determination that barrier islands constituted critical habitat for polar bears.]

QUESTIONS AND DISCUSSION

1. What must FWS do on remand if it hopes to establish critical habitat again? Do you think the agency will have the resources and scientific ability to provide the information the court says it must have? What does this decision suggest about other critical habitat designations for other species affected by climate change?

2. For the polar bear, anything but ice is likely to doom its existence, and in a warming environment, finding more ice will be difficult. For another species, the loss of current habitat may be accompanied by its growth someplace never before within the species' range. Should that habitat be declared "critical"? At least one court has upheld an agency's decision to not set critical habitat based on projected future habitat needs. *See* Alliance for the Wild Rockies v. Lyder, 728 F. Supp.2d 1126 (D. Mont. 2010).

3. For some species, FWS could also presumably establish an "experimental population" under Section 10(j) of the ESA by releasing individuals of a species into a new environment, provided that FWS "determines that such release will further the conservation of such species." Is this a reasonable strategy for protecting species nearing extinction due to climate change?

4. Critical habitat is supposed to help ensure the survival and recovery of a listed species. Outside of the climate change context, critical habitat designations can help protect areas from human disturbance and environmental degradation that may interfere with the species' breeding, feeding, or nesting. For example, designated critical habitat for old growth-dependent species should include old growth forests in which the species can nest and breed without facing risks from logging or other human disturbances. In the case of climate change, however, much of the human disturbance occurs indirectly, through melting ice and warmer temperatures. What value does critical habitat designation serve then?

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b. *Section 7 Consultation and Species Protection*

Under Section 7 of the ESA, federal agencies must consult with FWS or NMFS about the impacts of federal actions on listed species. If, through this consultation process, FWS or NMFS determines an agency action may "jeopardize the continued existence of a species" or destroy or adversely modify its critical habitat, the action agencies must modify their actions or risk legal liability for violating the ESA. Inter-agency consultation can thus provide an important mechanism to protect listed species and their habit. But will it help species like the polar bear? Consider the following.

BRENDAN R. CUMMINGS AND KASSIE R. SIEGEL, *URSUS MARITIMUS:* POLAR BEARS ON THIN ICE,

22 NATURAL RESOURCES & ENVIRONMENT 6–7 (2007)

Section 7 consultation is required for "any action [that] may affect listed species or critical habitat." 50 C.F.R. § 402.14. Agency "action" is defined in the ESA's implementing regulations to include:

> all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies in the United States or upon the high seas. Examples include, but are not limited to: . . . *actions directly or indirectly causing modifications to the land, water, or air.*

50 C.F.R. § 402.02 (emphasis added). This regulatory definition of "action" should be broad enough to encompass actions that result in GHG emissions, as it would be hard to argue that such emissions are not "causing modification to the land, water or air." *Id*. The remaining question with respect to the triggering of these requirements for an action resulting in GHG emissions is whether that action "may affect" the listed species. 50 C.F.R. § 402.14. While it is clear that global warming affects listed species, attributing an individual action's contribution to global warming is more difficult.

Because the goal of Section 7 consultation is to avoid jeopardizing any listed species, the regulatory definition of "jeopardy" offers some guidance as to how the consultation requirement for a GHG-emitting action may be interpreted. To "jeopardize" a species means "to engage in an action that reasonably would be expected, directly or indirectly, to reduce *appreciably* the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or distribution of that species." 50 C.F.R. § 402.02 (emphasis added). If an action "appreciably" contributed to global warming, that action could then be found to jeopardize a listed species. "Appreciably" is defined in the Oxford English Dictionary as being "to the degree that can be estimated," while something is "appreciable" if it is "large or important enough to be noticed." So if an action contributes an appreciable amount of GHG emissions to the atmosphere, that action should undergo the consultation process.

While many federal actions may not contribute appreciable amounts of GHGs to the atmosphere, many clearly do. For example, the corporate average fuel economy (CAFE) standards for sport-utility vehicles and light trucks are set via regulation by the National Highway Transportation Safety Administration. Because the transportation sector represents a large component of United States GHG emissions, the volume of GHGs represented by this single rulemaking are certainly "appreciable." Similarly, every five years the Minerals Management Service approves a program for all offshore oil and gas leasing for the entire United States. Again, the GHGs generated through the lifecycle of the production and use of these billions of barrels of oil are very appreciable. The GHG emissions from numerous other actions present in the approval of new coal-fired power plants, oil shale leasing programs, limestone mines for cement manufacturing, and dozens, perhaps hundreds, of other projects are individually and cumulatively having an appreciable effect on the atmosphere. These are all agency "actions" as defined by the ESA, which "may affect" listed species, and therefore trigger the consultation requirements of Section 7.

FWS, POLAR BEAR LISTING DETERMINATION

73 Fed. Reg. at 28,299–300

Some commenters to the proposed rule suggested that the Service should require other agencies (e.g., the Environmental Protection Agency) to regulate emissions from all sources,

including automobile and power plants. The best scientific information available today would neither allow nor require the Service to take such action.

First, the primary substantive mandate of section 7(a)(2) — the duty to avoid likely jeopardy to an endangered or threatened species — rests with the Federal action agency and not with the Service. The Service consults with the Federal action agency on proposed Federal actions that may affect an endangered or threatened species, but its consultative role under section 7 does not allow for encroachment on the Federal action agency's jurisdiction or policy-making role under the statutes it administers.

Second, the Federal action agency decides when to initiate formal consultation on a particular proposed action, and it provides the project description to the Service. The Service may request the Federal action agency to initiate formal consultation for a particular proposed action, but it cannot compel the agency to consult, regardless of the type of action or the magnitude of its projected effects.

Recognizing the primacy of the Federal action agency's role in determining how to conform its proposed actions to the requirements of section 7, and taking into account the requirement to examine the "effects of the action" through the formal consultation process, the Service does not anticipate that the listing of the polar bear as a threatened species will result in the initiation of new section 7 consultations on proposed permits or licenses for facilities that would emit GHGs in the conterminous 48 States. Formal consultation is required for proposed Federal actions that "may affect" a listed species, which requires an examination of whether the direct and indirect effects of a particular action meet this regulatory threshold. GHGs that are projected to be emitted from a facility would not, in and of themselves, trigger formal section 7 consultation for a particular licensure action unless it is established that such emissions constitute an "indirect effect" of the proposed action. To constitute an "indirect effect," the impact to the species must be later in time, must be caused by the proposed action, and must be "reasonably certain to occur" (*50 CFR 402.02* (definition of "effects of the action")). As stated above, the best scientific data available today are not sufficient to draw a causal connection between GHG emissions from a facility in the conterminous 48 States to effects posed to polar bears or their habitat in the Arctic, nor are there sufficient data to establish that such impacts are "reasonably certain to occur" to polar bears. Without sufficient data to establish the required causal connection — to the level of "reasonable certainty" — between a new facility's GHG emissions and impacts to polar bears, section 7 consultation would not be required to address impacts to polar bears.

A question has also been raised regarding the possible application of section 7 to effects posed to polar bears that may arise from oil and gas development activities conducted on Alaska's North Slope or in the Chukchi Sea. It is clear that any direct effects from oil and gas development operations, such as drilling activities, vehicular traffic to and from drill sites, and other on-site operational support activities, that pose adverse effects to polar bears would need to be evaluated through the section 7 consultation process. It is also clear that any "indirect effects" from oil and gas development activities, such as impacts from the spread of contaminants (accidental oil spills, or the unintentional release of other contaminants) that result from the oil and gas development activities and that are "reasonably certain to occur," that flow from the

"footprint" of the action and spread into habitat areas used by polar bears would also need to be evaluated through the section 7 consultation process.

However, the future effects of any emissions that may result from the consumption of petroleum products refined from crude oil pumped from a particular North Slope drilling site would not constitute "indirect effects" and, therefore, would not be considered during the section 7 consultation process. The best scientific data available to the Service today does not provide the degree of precision needed to draw a causal connection between the oil produced at a particular drilling site, the GHG emissions that may eventually result from the consumption of the refined petroleum product, and a particular impact to a polar bear or its habitat. At present there is a lack of scientific or technical knowledge to determine a relationship between an oil and gas leasing, development, or production activity and the effects of the ultimate consumption of petroleum products (GHG emissions). There are discernible limits to the establishment of a causal connection, such as uncertainties regarding the productive yield from an oil and gas field; whether any or all of such production will be refined for plastics or other products that will not be burned; what mix of vehicles or factories might use the product; and what mitigation measures would offset consumption. Furthermore, there is no traceable nexus between the ultimate consumption of the petroleum product and any particular effect to a polar bear or its habitat. In short, the emissions effects resulting from the consumption of petroleum derived from North Slope or Chukchi Sea oil fields would not constitute an "indirect effect" of any federal agency action to approve the development of that field.

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QUESTIONS AND DISCUSSION

1. FWS relies on the definition of "indirect effects" to conclude that:

> For those effects beyond the direct effects of the action, our regulations at 50 CFR § 402.02 require that they both be "caused by the action under consultation" and "reasonably certain to occur." That is, the consultation requirement is triggered only if there is a causal connection between the proposed action and a discernible effect to the species or critical habitat that is reasonably certain to occur. One must be able to "connect the dots" between an effect of proposed action and an impact to the species and there must be a reasonable certainty that the effect will occur.

FWS, Final Rule, Special Rule for the Polar under Section 4(d) of the Endangered Species Act, 73 Fed. Reg. 11,7666, 11,784 (Feb. 20, 2013). Consider the FWS's regulatory definitions of "action area" and "effects":

> Action area means all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action. * * *
>
> Effects of the action refers to the direct and indirect effects of an action on the species or critical habitat, together with the effects of other activities that are interrelated or interdependent with that action, that will be added to the

> environmental baseline. The environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation in process. Indirect effects are those that are caused by the proposed action and are later in time, but still are reasonably certain to occur. Interrelated actions are those that are part of a larger action and depend on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration.

50 C.F.R. § 402.02. Is FWS's interpretation "indirect effects" consistent with these definitions?

2. The Center for Biological Diversity (CBD) claims that listing the polar bear as threatened "will provide concrete help to polar bears and could revolutionize American climate policy," because the polar bear's protected status will trigger the ESA's consultation provisions for perhaps hundreds of projects throughout the United States. Others agree that the net cast by Section 7 is potentially very broad because it requires federal agencies to consult with FWS or NMFS if their actions "may affect" listed species or designated critical habitat. *See* John Kostyack & Dan Rohlf, *Conserving Endangered Species in an Era of Global Warming*, 38 ELR 10203, 10212 (2008) (arguing that NMFS "should construe any action that results in non-trivial net increases of GHGs as meeting this threshold."). Professor Lisa Heinzerling criticized FWS's polar bear ruling, stating "the requirements of causation and reasonable certainty apply only to the indirect effects of an agency action on a species. It would take a subtle argument — one the Department does not provide — to explain why greenhouse gases' effects on the polar bear are not "direct" within the meaning of the Department's rules. Lisa Heinzerling, Climate Contrast: Of Polar Bears and Power Plants (May 15, 2008) *at*: http://gulcfac.typepad.com/georgetown_university_law/2008/05/climate-hypocri.html. Revisit Section A.4, above, discussing the requirements of an adequate biological opinion, and the definitions in note 1. Do you agree that Section 7 requires, for example, consultation with FWS regarding polar bears prior to issuing permits for construction of a coal-fired power plant in New Jersey or new CAFE standards for automobiles because such activities "jeopardize" the polar bear? Are the effects from such projects direct or indirect effects?

3. Whether FWS must engage in Section 7 consultation to determine whether CO_2-emitting federal activities jeopardize polar bears is one question. A separate question is whether climate change impacts must be assessed in a biological opinion where a project will have direct, non-climate change effects on a listed species. At least two courts have already said "yes," and found biological opinions to be inadequate because FWS and NMFS failed to discuss and evaluate the impacts of climate change in concluding that a project would not jeopardize protected species. NRDC v. Kempthorne, 506 F.Supp.2d 322 (E.D. Cal. 2007); Pacific Coast Federation of Fishermen's Associations v. Gutierrez, 606 F. Supp.2d 1122, 1184 (E.D. Cal. 2008). The *Kempthorne* case concerned the impacts on a threatened species of fish, the Delta smelt, of the federally-managed Central Valley Project and the State of California's State Water Project, among the world's largest water diversion projects. The court ruled that FWS must consider not only the direct impacts of the water project on the Delta smelt, but also the cumulative effects of

climate change, which could affect precipitation and thus the habitat of the Delta smelt. The court did not require FWS to assess a project's indirect climate change impacts on a species. Instead, the court ruled FWS should engage in consultation where "modeling and field observations indicate it is 'reasonably certain' that climate change will lead to changes in ecological conditions to the detriment of a protected species. . . to determine whether the project, taking those changes into account as cumulative effects, is (reasonably expected) to jeopardize the species." Ruhl, *Climate Change and the Endangered Species Act*, at 47 (describing the effect of the court's ruling). Is this a practical way to implement the jeopardy requirements of Section 7?

4. FWS and NMFS already conduct thousands of consultations each year. If it is true that a very large range of federal projects would require Section 7 consultation, the number of consultations could skyrocket. With two Caribbean coral species, the polar bear, and several other species already listed as threatened in part due to climate change, the scope of Section 7 is called into question.

> It is not difficult to imagine, for instance, FWS scientists concluding that increased GHG emissions jeopardize the continued existence of polar bears or adversely affect their sea-ice critical habitat. Since the ESA forbids such a result absent a §7 exemption by the high-level Endangered Species Committee (the God Squad), is it conceivable that the ESA would then simply ban any and all federal agency actions resulting in increased emissions? In other words, can a wildlife agency by itself apply the brakes to U.S.GHG emissions — something that Congress and the EPA have so far been unwilling or unable to do? Alternatively, will the God Squad be called upon to issue multiple — or even blanket — §7 exemptions for federal actions that contribute to climate change? Or will we simply see increased efforts by lawmakers (via appropriations riders or indirect political pressure on agencies) or the executive branch (through backroom dealings and increased coercion of agency scientists) to soft-peddle the threats and impacts of climate change?

Kostyack & Rohlf, *Endangered Species in an Era of Global Warming*, at 10,209. Because of the potentially overwhelming number of consultations that could result from climate change, resort to the "God Squad" may provide a politically attractive solution for protecting the ESA, even if it means rejecting the ESA as a possible tool for addressing climate change. To avoid this situation, Kostyack and Rohlf suggest tying compliance with Section 7 to consistency with a national program to regulate GHG emissions. Under this proposal, emitters would certify compliance with the applicable national program capping GHG emissions. *Id*. at 10,212. The authors recognize that no national cap currently exists but believe one is likely in the near future. Assuming Congress establishes a national cap, what are the strengths and weaknesses of such a proposal?

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c. *Prohibitions against "Taking"*

As with Section 7, petitioners had hoped that the take prohibition in Section 9 would provide a means for reducing U.S. emissions of greenhouse gases:

> While Section 7 only applies to federal actions and agencies, the prohibitions of Section 9 apply far more broadly, reaching the actions of private entities and corporations. Section 9 prohibits the "take" of listed species, which includes "harming" and "harassing" members of the species in addition to simply killing them directly. Both the legislative history and case law support "the broadest possible" reading of "take." Whether that reading is broad enough to encompass GHG emissions remains to be seen.

Cumming and Siegel, at 7.

The effect of such an interpretation could be monumental. For example, driving an automobile in Houston or New York emits carbon dioxide that contributes to climate change. Is that a "take" within the meaning of the ESA because your actions, while not directly killing polar bears, "harm" the species? If so, are you, when you drive your car, liable under the ESA for civil penalties?

In its Polar Bear Listing Determination, FWS agreed that Section 9 is much "broader than a simple prohibition against killing an individual of the species." In particular, it noted that "harm" in the definition of "take" under the ESA means an act that actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife "by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering." FWS was quick to add, however, that the ESA also provides for the authorization of take and exceptions to the take prohibitions. FWS pursued such an exception when it developed a special rule under Section 4(d) tailored to the conservation needs of a threatened species instead of applying the general threatened species regulations. FWS, Special Rule for the Polar Bear, 73 Fed. Reg. 28,306 (May 15, 2008). Environmental protection groups soon challenged the rule.

IN RE POLAR BEAR ENDANGERED SPECIES ACT LISTING AND §4(d) RULE LITIGATION

818 F. Supp. 2d 214 (D.D.C. 2011)

B. Plaintiffs' ESA Claim

In its Special Rule for the polar bear, the Service found that it is necessary and advisable to extend Section 9 take prohibitions to the polar bear, but that it is not necessary for the conservation of the species to apply those prohibitions to (1) activities that are currently authorized or exempted under the MMPA or CITES; or (2) activities that are occurring outside the range of the species but may incidentally impact polar bears. The Service determined that extending limited additional ESA protections to the polar bear is particularly appropriate in light of the comparable protections available under the MMPA, which apply to activities that impact polar bears regardless of where those activities occur.

Plaintiffs claim that the Service's Special Rule fundamentally violates the ESA because it fails to provide sufficiently for the conservation of the polar bear. Plaintiffs' claim relies in large part on two threshold assumptions: first, that the plain language of the ESA requires the agency to "provide for the conservation" of threatened species; and second, that the Service cannot "reduce" the protections that would automatically apply to the polar bear under 50 C.F.R. § 17.31, which extends all Section 9 take prohibitions to all threatened species, without demonstrating a valid conservation basis for diverging from that default rule. The Court will address each of these threshold issues in turn.

1. Whether the Service's Special Rule Must Be Necessary and Advisable to Provide for the Conservation of the Polar Bear

Section 4(d) of the ESA reads, in relevant part:

> [W]henever any species is listed as a threatened species . . . the Secretary shall issue such regulations as he deems necessary and advisable to provide for the conservation of such species. The Secretary may by regulation prohibit with respect to any threatened species any act prohibited under section 9(a)(1), in the case of fish or wildlife.

16 U.S.C. § 1533(d). Plaintiffs assert that the plain language of this section establishes a strict standard that all special rules promulgated under Section 4(d) must be "necessary and advisable to provide for the conservation of [the] species."

In accordance with controlling D.C. Circuit precedent, the Court must reject plaintiffs' plain-language reading of Section 4(d), and it finds that the statute is ambiguous on this point. However, in its Special Rule, the Service in fact adopted the standard urged by plaintiffs: "[T]he regulations promulgated under section 4(d) of the ESA provide the Secretary the discretion to determine what prohibitions, exemptions, or authorizations are *necessary and advisable* for a species, *so long as the regulation provides for the conservation of that species.*" (emphasis added). Indeed, the Service premised its Special Rule on a finding that the rule is necessary and advisable to provide for the conservation of the polar bear.

. . . Accordingly, the Court upholds the Service's interpretation under step two of the *Chevron* framework, and it will review the Special Rule for the polar bear pursuant to the "necessary and advisable" standard adopted by the agency.

2. Whether the Service Must Demonstrate a Valid Conservation Basis for Departing from 50 C.F.R. § 17.31(a)

A second fundamental premise of plaintiffs' ESA claim is that the Service cannot "reduce" the protections that would otherwise apply to the bear under the Service's general regulations for threatened species, set forth at 50 C.F.R. § 17.31(a), without demonstrating a valid conservation basis for not applying the default rule. Plaintiffs note that "for more than 30 years, it has been the Service policy and administrative practice to extend the ESA's full protections against take to threatened species as the most effective approach for ensuring their conservation." Therefore,

plaintiffs argue, any departure from this longstanding practice must have a valid conservation purpose.

The Court finds this argument unpersuasive. Plaintiffs are correct that, in the absence of a special rule, management of the polar bear under the ESA would be governed by the general rule set out at 50 C.F.R. § 17.31(a), which extends all of the Section 9 take prohibitions to all threatened species. However, section 17.31 also authorizes the Service to issue special rules for particular species pursuant to Section 4(d). . . . Nothing in the regulation, or in the ESA itself, requires the agency to demonstrate a conservation basis for *not* applying the general regulation at 50 C.F.R. § 17.31(a).

Indeed, courts have recognized that the ESA does not require regulations protecting threatened species from taking at all. Section 4(d) itself merely provides that the Secretary "*may* . . . prohibit with respect to threatened species *any* act prohibited under section 9(a)(1)" (emphasis added).

Accordingly, the Court finds that the Service was not required to demonstrate that diverging from the general regulation at 50 C.F.R. § 17.31(a) is necessary and advisable to provide for the conservation of the polar bear. Rather, the relevant question before the Court is whether the Service reasonably concluded that the specific prohibitions and exceptions set forth in its Special Rule are necessary and advisable to provide for the conservation of the polar bear. . . .

3. Whether the Service Reasonably Concluded that its Special Rule Is Necessary and Advisable to Provide for the Conservation of the Polar Bear

The ESA defines "conservation" as "the use of all methods and procedures which are *necessary* to bring any endangered species or threatened species to the point at which the measures provided . . . are no longer necessary." 16 U.S.C. § 1532 (emphasis added). Whereas the ESA itself prescribes certain measures that Congress deemed necessary to provide for the conservation of endangered species, Congress has generally delegated to the Secretary of the Interior the responsibility of determining what measures are necessary for the conservation of threatened species. In this case, the Service determined that it is necessary and advisable to extend Section 9 take prohibitions to the polar bear but that it is *not* necessary for the conservation of the species to apply those prohibitions to activities that are currently authorized or exempted under the MMPA or CITES, or to activities that are occurring outside the range of the species that may incidentally impact polar bears.

Plaintiffs contend that the Service's Special Rule cannot be necessary and advisable to provide for the conservation of the polar bear because it does not address the primary threat to the species from greenhouse gas emissions and the loss of its sea ice habitat. Specifically, plaintiffs argue that the Service purposefully chose not to extend the full Section 9 take prohibitions to the polar bear "in order to . . . exempt greenhouse gas emissions from the reach of the ESA." Although it is undisputed that the Special Rule does not address greenhouse gas emissions, the Court is persuaded that the rule nonetheless survives rational basis review.

As a threshold matter, and contrary to plaintiffs' assertions, nothing in the Special Rule expressly exempts greenhouse gas emissions from regulation under the ESA or any other statute. To the extent the Service discussed greenhouse gases in the preamble to its Special Rule, the Service noted that anticipated sea ice losses as a result of greenhouse gas emissions "would not be alleviated" by an additional overlay of incidental take provisions under the ESA. The Service further explained in response to comments that "[t]here is currently no way to determine how the emissions from a specific action both influence climate change and then subsequently affect specific listed species, including polar bears." In other words, because climate modeling does not currently allow the agency to draw a causal connection between the greenhouse gas emissions from a specific source and the impact on a particular polar bear, the Service determined that it cannot identify when a "take" has occurred for the purposes of enforcing the incidental take provisions of the ESA against an individual greenhouse gas emitter. Accordingly, the Service concluded that even extending the full take prohibitions of the ESA to the polar bear would not effectively address the threat to the species from sea ice losses caused by global greenhouse gas emissions.

The administrative record amply supports the Service's conclusion. In a memorandum summarizing the most recent findings on this issue by the leading international climate science research organizations, the United States Geological Survey determined that "[i]t is currently beyond the scope of existing science to identify a specific source of CO_2 emissions and designate it as the cause of specific climate impacts at an exact location." * * *

Notably, plaintiffs do not contradict this record evidence. Rather, at bottom, plaintiffs' complaint appears to be that the Special Rule pre-emptively forecloses the option of citizen enforcement actions against greenhouse gas emitters in the contiguous United States. The citizen suit provision of the ESA authorizes "any person" to commence a civil suit on her own behalf to enforce certain provisions of the statute, including penalties for prohibited takings of listed species. 16 U.S.C. § 1540(g). Plaintiffs have expressed a concern that, because no incidental take of a polar bear that occurs outside the range of the species will be considered a prohibited taking within the meaning of the ESA as a result of the Service's Special Rule, no grounds exist for citizen enforcement actions against greenhouse gas emitters operating outside the range of the species in Alaska. By precluding citizen enforcement in these circumstances, plaintiffs contend, the Service has unlawfully eliminated a potentially useful tool for addressing greenhouse gas emissions and, ultimately, Arctic sea ice loss. However, although plaintiffs would undoubtedly prefer a broad citizen enforcement option, the Court is not persuaded that the Special Rule is arbitrary and capricious on these grounds.

The Court is satisfied that the Service articulated a rational basis for the prohibitions and exceptions set forth in its Special Rule. The Service determined that an additional overlay of ESA permitting procedures and penalties within the range of the polar bear is necessary and advisable to provide for the conservation of the species due to the timing and proximity of potential takings of polar bears from oil and gas exploration and development activities in Alaska. Specifically, the Service concluded that ESA penalties, including citizen enforcement actions, may be necessary to avoid or otherwise reduce these direct impacts. The Service found no evidence to suggest that extending the ESA incidental take provisions outside the range of the polar bear would produce similar conservation benefits, however. With respect to these indirect

impacts, in the event that an incidental take can be identified and attributed to a specific cause originating outside the species' range, the Service found that the incidental take provisions of the MMPA are sufficient to address that violation. Accordingly, the Service concluded that an additional overlay of ESA incidental take permitting procedures and penalties outside the range of the polar bear is not necessary for the conservation of the species. The Court finds that the agency's conclusions follow from the evidence before it, and the Service has articulated a rational basis for limiting the extent of the Section 9 take prohibitions to the current range of the polar bear.

QUESTIONS AND DISCUSSION

1. The plaintiffs believed that the special rule promulgated by FWS would carve out a significant exemption from the ESA's take prohibition. In practice, however, the take prohibition has been difficult to enforce. Consider the arguments of Professor J.B. Ruhl:

> The harm definition projects the take prohibition from cases in which the action causes direct death or injury (e.g., hunting, shooting, and trapping), to cases in which causality is indirect — i.e., loss of habitat leads in some way to actual death or injury. However, theories of indirect take can become quite attenuated and speculative, in which case it would be unreasonable to enforce the take prohibition's rebuttable presumption against the activity as rigorously as in more obvious cases of direct take. For example, assume that a developer's plan to build a subdivision would locate new homes in an area within several hundred yards of habitat known to be occupied by members of a protected bird species, but not actually in the habitat. Opponents of the project may argue that some of the residents of the new homes will have cats as pets, some of those cat owners will allow their cats to wander outdoors, some of those cats may venture into the bird's habitat, and some of those cats may eat birds, and some of those birds may be individuals of the protected bird species. Anyone could speculate such possibilities, and it would be unreasonable to impose the burden on the developer of proving the postulated scenario is not possible.
>
> Rather, as the Court pronounced when it upheld the harm definition, in many cases it is appropriate to impose the burden of proof on the proponent of the indirect harm theory. Thus, the majority emphasized that the harm rule incorporates "but for" causation, with "every term in the regulation's definition of "harm' . . . subservient to the phrase "an act which actually kills or injures wildlife.'" Furthermore, the term should "be read to incorporate ordinary requirements of proximate causation and foreseeability." The majority thus implicitly endorsed Sweet Home's "strong arguments that activities that cause minimal or unforeseeable harm will not violate the [ESA] as construed." In her concurrence, Justice O'Connor was more direct, limiting the scope of the harm rule to "significant habitat modification that causes actual, as opposed to hypothetical or speculative, death or injury to identifiable protected animals." Since the Court established these tort-like evidentiary burdens, the lower courts

> have steadfastly refused to enforce the take prohibition based on attenuated indirect take theories, but have enjoined case-specific instances of take when death or injury was proven to be likely.
>
> The stiff evidentiary and proof burdens Sweet Home imposed largely explain why the government and citizen groups (through citizen suits) so infrequently attempt to prosecute take violation claims. Prosecuting a climate change case would be no mean feat either, given the generic effects of greenhouse gas emissions and the imprecision of downscaling models. Consider, for example, a scenario in which the pika is listed as endangered due to climate change. Who is taking the pika? Are greenhouse gas emissions from, say, a coal-fired power plant in Florida taking the pika? The plaintiff in such a case would have to show that the power plant emissions are the actual as well as proximate, foreseeable cause of the primary and secondary ecological effects which are in turn the actual as well as proximate, foreseeable cause of the pika's demise. Proving that would prove too much, however, as it would necessarily follow that all sources of greenhouse gases are taking the pika. This is an inherent feature of the take prohibition that makes it inapposite when take of a species occurs through large-scale, dispersed causal agents, such as water consumption and pollution—if anyone is taking the species, everyone is taking the species. Although nothing in the ESA prevents the FWS from attempting to prosecute such a case, it would be a daunting prosecutorial undertaking as well as likely political suicide. Thus far, the FWS has exhibited no stomach for it, and in the long run may determine to use its discretion — in this case prosecutorial discretion — to leave greenhouse gas emissions out of its take enforcement agenda.
>
> The take prohibition would prove more manageable to enforce against discrete, identifiable actions that make it less likely a climate-threatened species will survive through the climate change transition. In particular, human adaptation to climate change is likely to present collisions between many species, climate-threatened or not, and human responses such as relocated agricultural and urban land uses, technological structures designed to impede sea level rise and floods, and new and intensified water diversions to sustain parched urban centers. Enforcement of the take prohibition in such settings, where proximate cause may be less difficult to establish, could help ensure that human adaptation measures are not carried out recklessly with respect to the interests of imperiled species. In this sense, section 9 would be used no differently from the way it is already used — climate change effects would simply be a reason to use it more vigilantly.

J.B. Ruhl, *Climate Change and the Endangered Species Act*, at 39–42. Note carefully the causal chain that Professor Ruhl describes. Plaintiffs would first need to demonstrate that emissions cause specific effects and then that those effects cause the decline of the polar bear, or in his example, the pika. Can you imagine a scenario in which that causal chain could be established? Which activities should the FWS prohibit to "conserve" polar bears?

2. *Incidental Takes*. In 2006, under the Marine Mammal Protection Act (MMPA), 16 U.S.C. § 1371(a)(5)(A), the FWS authorized the non-lethal, incidental take of small numbers of polar bears and Pacific walruses during year-round oil and gas operations in the Beaufort Sea and adjacent northern coast of Alaska through August 2, 2011. 71 Fed. Reg. 43,926 (Aug. 2, 2006). The Center for Biological Diversity unsuccessfully challenged the rule under the MMPA and NEPA. *Ctr. for Biological Diversity v. Kempthorne*, 588 F.3d 701 (9th Cir. 2009). FWS also authorized the non-lethal, incidental, unintentional take of small numbers of Pacific walruses and polar bears during year-round oil and gas industry exploration activities in the Chukchi Sea and adjacent western coast of Alaska through June 11, 2013. 73 Fed. Reg. 33,212 (June 11, 2008). Plaintiffs lost a challenge to this rule as well. *Ctr. for Biological Diversity v. Salazar*. 695 F.3d 893 (9th Cir. 2012). On August 3, 2011, FWS extended the incidental take permit for the Beaufort Sea and adjacent areas through August 3, 2016. 76 Fed. Reg. 47,010 (Aug. 3, 2011). In light of the conservation status of polar bears, should the FWS allow the incidental take of any polar bears?

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d. *Recovery Plans*

A recovery plan is supposed to provide "the process that stops or reverses the decline of a species and neutralizes threats to its existence." *Fund for Animals*, 903 F. Supp. at 103. In that sense, climate change and polar bears pose special challenges for recovery plans. According to attorneys for the Center for Biological Diversity, "[t]here is no hope for recovery, much less survival, of the polar bear absent substantial reductions in GHG emissions. Any legally adequate recovery plan must therefore include mandates to reduce such emissions." Cummings & Siegel, at 7. Do you agree? In what ways, absent GHG emissions reductions, would a recovery plan benefit the polar bear? Review the provisions of the ESA concerning recovery plans. Can FWS avoid preparing a recovery plan because the conservation of the polar bear will not benefit from one?

QUESTIONS AND DISCUSSION

1. In the context of polar bears and climate change, what are the primary limitations of the recovery plan framework? For example, what would site-specific management plans entail? In addition, assuming that reductions in GHG emissions are required because today's emissions will continue to have climate change effects for several decades, would any restrictions on GHG be futile, at least with respect to the polar bear? Even if the ESA's recovery provisions mandate reductions in greenhouse gas emissions for the polar bear, FWS and its parent agency, the Department of Interior (or NMFS for species under its jurisdiction), must have authority to implement such actions. What major GHG emitting activities does the Department of Interior have jurisdiction over?

2. In reaching its conclusion that there are no known regulatory mechanisms effectively addressing reductions in sea ice habitat at this time, FWS reviewed a number of domestic and international treaties relating to habitat and polar bear conservation. It did not, however, refer to the Climate Change Convention or the Kyoto Protocol or any statute addressing emissions of

GHGs. Indeed, the proposed rule does not refer to any emissions of GHGs anywhere. What effect might this have on a recovery plan or Section 7 consultation?

3. John Kostyack and Dan Rohlf suggest that climate change may fundamentally alter the role of recovery plans:

> [M]any species now depend on habitat or ecological processes so altered by human activity that these species will need intensive management efforts on an ongoing basis simply to ensure their continued existence. Such plants and animals, sometimes called "conservation-reliant" species, may never recover as Congress contemplated in §4 because they require on a perpetual basis the legal protections and management obligations imposed by the ESA. Given that by virtually any conceivable scenario we are not likely to solve the problem of climate change in the foreseeable future, many species now on the protected lists are likely to fall into the conservation-reliant category. This may mean that the emergency room analogy commonly used to describe the ESA, wherein the Act saves species from a disaster and then discharges them to their natural state, must for many species give way to seeing the statute more as long-term intensive care. Under this conception of the law, recovery of listed species would not serve as the ESA's principal goal for many species imperiled by climate change; instead, maintenance plans and their implementation would focus on perpetually managing targeted species so they do not experience significant declines or become extinct.

Kostyack & Rohlf, *Endangered Species in an Era of Global Warming*, at 10,208. Is it possible to reinterpret the existing provisions for recovery plans to implement "maintenance plans" envisaged by Kostyack and Rohlf? If not, what new legislation would you propose to focus on managing targeted species to avoid significant declines?

4. Polar Bears offer an extreme case perhaps because their habitat is literally melting. For other species, it may be possible to design management plans that may actually recover the species rather than simply maintain it. For a terrestrial species, what might appropriate management measures entail? Kostyack and Rohlf suggest that recovery plans focus on specific issues related to adaptation to global warming:

> (1) corridors for species movement that allow transitions to more hospitable areas; (2) measures particularly aimed at managing and protecting vulnerable resources such as water availability and specialized habitat needs; (3) better use of population and habitat availability projections; (4) stronger adaptive management programs for long-term operations such as dams; (5) protection and acquisition of northerly or higher elevation portions of species' ranges; and (6) targeted population supplementation and reintroductions.

Id. at 10,212.

5. In the press release accompanying the polar bear determination, Secretary of Interior Dirk Kempthorne said: "Listing the polar bear as threatened can reduce avoidable losses of polar bears. But it should not open the door to use of the ESA to regulate greenhouse gas emissions from automobiles, power plants, and other sources. That would be a wholly inappropriate use of the ESA law. The ESA is not the right tool to set U.S. climate policy." Do you agree? Undeterred by the FWS's decisions relating to the polar bear designation, the Center for Biological Diversity asked FWS and NMFS to list ringed, bearded, spotted and ribbon seals and the Pacific walrus, all ice-dependent species, as threatened or endangered. NMFS responded by listing two distinct populations segments of a subspecies of the bearded seal as threatened, listing three subspecies of the ringed seal as threatened, and listing one subspecies of the ringed seal as endangered. 77 Fed. Reg. 76,740 (Dec. 28, 2012); 77 Fed. Reg. 76,706 (Dec. 28, 2012). FWS, however, denied listing the Pacific walrus. Although the agency found that listing the animal as threatened or endangered was justified, listing was "precluded by higher priority actions to amend the Lists of Endangered and Threatened Wildlife and Plants." Instead, FWS added the walrus to the FWS candidate species list, which it reviews annually. 76 Fed. Reg. 7,634 (Feb. 10, 2011). What effect, if any, do you think these listing decisions will have on climate change mitigation and adaptation efforts? What benefits will they offer the species?

IV. THE CLEAN WATER ACT

The Clean Water Act (CWA) may not immediately come to mind when one thinks of federal statutes that could address climate change. And, to be sure, the CWA will likely play a very limited role in reducing emissions of greenhouse gases from most facilities. However, it could play a more substantial part in protecting and restoring water bodies, including the ocean, degraded by climate change and acidification.

A. Overview

Congress enacted the CWA to "restore and maintain the chemical, physical and biological integrity of the Nation's waters." Federal Water Pollution Control Act, 33 U.S.C. §§ 1251–1387, § 1251(a). It also sought to eliminate by 1985 discharges of pollutants into navigable waters and achieve by 1983, wherever attainable, water quality that protects fish and wildlife and provides recreation in and on the water. *Id*.

To effectuate its goals, the CWA prohibits "the discharge of any pollutant" into navigable waters unless otherwise permitted. 33 U.S.C. § 1311(a). A "discharge of a pollutant" is defined as "any addition of any pollutant into navigable waters from any point source." 33 U.S.C. § 1362(12). Any release of pollution that qualifies as a "discharge of a pollutant" is subject to stringent requirements under the CWA's National Pollutant Discharge Elimination System (NPDES) permit program of Section 402 or the dredged or fill material permit program under Section 404. 33 U.S.C. §§ 1342, 1344. The NPDES permit program forms the heart of the CWA and, along with other sections of the CWA, requires discharges to meet technology-based effluent limitations (reflecting the application of the best practicable, best conventional, or best available technology to limit pollution) as well as "any more stringent limitation necessary to meet water quality standards." 33 U.S.C. §§ 1342, 1311(b) & (b)(1)(C). The CWA's dual