

II. THE NATIONAL ENVIRONMENTAL POLICY ACT

In the United States, the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. §§ 4321–4370e, establishes a broad national commitment to protecting and promoting environmental quality by focusing an agency’s attention on the environmental consequences of a proposed project. NEPA thus ensures that important environmental impacts will not be overlooked or underestimated only to be discovered after resources have been committed. Another fundamental purpose of NEPA is to guarantee “that the relevant information will be made available to the larger audience that may also play a role in both the decisionmaking process and the implementation of that decision.” *See Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989).

To fulfill these goals, NEPA provides:

[A]ll agencies of the Federal Government shall . . . include in every recommendation or report on proposals for . . . major federal actions significantly affecting the quality of the human environment, a detailed statement . . . on the environmental impact of the proposed action.

42 U.S.C. § 4332(2)(C).

This “detailed statement” is known as an environmental impact statement (EIS) (and more commonly called an environmental impact assessment (EIA) in other countries). NEPA’s mandate to prepare an EIS has several important threshold questions: Is the action federal? Is the action major? Are the impacts of the action significant?

Assuming these threshold questions are answered in the affirmative, NEPA and its implementing regulations, 40 C.F.R. §§ 1500–1517, require an agency to assess the direct, indirect, and cumulative impacts of the proposed action and propose measures to mitigate any adverse impacts. It also requires the relevant agency to evaluate reasonable alternatives to the proposed project, as well as each alternative’s potential direct, indirect, and cumulative impacts and possible mitigation measures.

NEPA’s regulations allow an agency to prepare a less detailed Environmental Assessment (EA) to determine whether the proposed action is one that requires a full EIS. 40 C.F.R. § 1501.4(b). The EA must briefly describe the proposal, examine alternatives, and assess the environmental impacts. 40 C.F.R. § 1508.9. Based on the information included in the EA, an agency may issue a “finding of no significant impact” (FONSI), which relieves the agency of its obligation to prepare a full EIS. Although an EA need not “conform to all the requirements of an EIS,” it must be “sufficient to establish the reasonableness of th[e] decision” not to prepare an EIS. *Found. for N. Am. Wild Sheep v. U.S. Dep’t of Agric.*, 681 F.2d 1172, 1178 n. 29 (9th Cir. 1982). If the EA establishes that the agency’s action may have significant environmental impacts, the agency must prepare an EIS.

Importantly, the duty to prepare an EIS is procedural only and does not trigger a specific environmental outcome. *Robertson v. Methow Valley Citizens Council*, 490 U.S. at 350–351. Thus, even if the EIS indicates that one alternative is clearly preferable from an environmental perspective, the agency is under no obligation to choose that alternative. Nevertheless, plaintiffs have been challenging agency actions for failure to incorporate the impacts of climate change in their EAs and EISs. As you read the cases below, ask yourself what the value of the NEPA

process is if the EA or EIS does not force the agency to take any particular action.

A. Is an EIS Needed?

As noted above, several threshold issues determine whether a federal agency must prepare an EIS. Under NEPA and cases interpreting it, “action” has been defined broadly to include “new and continuing activities, including projects and programs entirely or partly financed, assisted, conducted, regulated, or approved by federal agencies.” 40 C.F.R. § 1508.18. An action is “federal” if it is “potentially subject to federal control or responsibility.” *Id.* To date, these threshold issues have not factored in climate change litigation. Whether impacts of a federal project are “significant,” however, has.

A number of cases have challenged the adequacy of EAs, claiming that a full-blown EIS was required. In an early climate change case, a group of cities, states, and environmental groups challenged the failure of the National Highway Traffic Safety Administration (NHTSA) to prepare an EIS addressing climate change impacts when it relaxed the Corporate Average Fuel Economy (CAFE) standards for automobiles. *City of Los Angeles v. NHTSA* 912 F.2d 478 (D.C. Cir 1990); *overruled in part by* *Florida Audubon v. Bentsen*, 94 F.3d 658 (D.C. 1996). The Energy Policy and Conservation Act of 1975 (EPCA) made 27.5 miles per gallon (mpg) the presumptive CAFE standard for Model Year 1985 (MY 85) and thereafter. The Act also authorized the NHTSA to set a different standard, not lower than 26.0 mpg, for any individual model year at the level it determines to be “the maximum feasible average fuel economy level” for that year (CAFE standards are discussed in more detail in Chapter 15 on transportation). The NHTSA exercised this authority to set the standard at 26.0 mpg for MYs 87–88 and at 26.5 mpg for MY 89. After preparing an EA for each of these findings, the NHTSA issued its FONSI, stating that the lower CAFE standards would not “significantly affect[] the quality of the human environment.” The petitioners claimed that the NHTSA should have prepared an EIS to consider, among things, the adverse climatic effects of the increase in fossil fuel consumption that would result from setting a CAFE standard lower than 27.5 mpg. The court held that the small percentage increase in greenhouses gas emissions from the proposed standard would not cause significant environmental impacts. Thus, the NHTSA’s decision not to prepare an EIS was not “arbitrary, capricious, or otherwise contrary to law.”

In *Center for Biological Diversity v. National Highway Traffic Safety Administration*, almost two decades after *City of Los Angeles*, the courts had a chance to revisit fuel economy standards and NHTSA’s approach to determining those standards.

CENTER FOR BIOLOGICAL DIVERSITY v. NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

508 F.3d 508 (9th Cir. 2007)

BETTY B. FLETCHER, CIRCUIT JUDGE:

Eleven states, the District of Columbia, the City of New York, and four public interest organizations petition for review of a rule issued by the National Highway Traffic Safety Administration (NHTSA) entitled “Average Fuel Economy Standards for Light Trucks, Model Years 2008–2011,” 71 Fed.Reg. 17,566 (Apr. 6,

2006) (“Final Rule”) (codified at 49 C.F.R. pt. 533). Pursuant to the Energy Policy and Conservation Act of 1975 (EPCA), 49 U.S.C. §§ 32901–32919 (2007), the Final Rule sets corporate average fuel economy (CAFE) standards for light trucks, defined by NHTSA to include many Sport Utility Vehicles (SUVs), minivans, and pickup trucks, for Model Years (MYs) 2008–2011. For MYs 2008–2010, the Final Rule sets new CAFE standards using its traditional method, fleet-wide average (Unreformed CAFE). For MY 2011 and beyond, the Final Rule creates a new CAFE structure that sets varying fuel economy targets depending on vehicle size and requires manufacturers to meet different fuel economy levels depending on their vehicle fleet mix (Reformed CAFE).

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Petitioners argue that NHTSA’s Environmental Assessment is inadequate under NEPA because it fails to take a “hard look” at the greenhouse gas implications of its rulemaking and fails to analyze a reasonable range of alternatives or examine the rule’s cumulative impact. Petitioners also argue that NEPA requires NHTSA to prepare an Environmental Impact Statement.

I. FACTUAL AND PROCEDURAL BACKGROUND

* * *

NHTSA issued the Final Rule on April 6, 2006. 71 Fed.Reg. at 17,566. NHTSA set the CAFE standards for MY 2008–2010 (Unreformed CAFE) at the same levels as proposed in the NPRM [notice of proposed rulemaking].³⁰ Unreformed CAFE sets a fleet-wide average fuel economy standard “with particular regard to the ‘least capable manufacturer with a significant share of the market.’” NHTSA has reformed the structure of the CAFE program for light trucks, effective MY 2011 (Reformed CAFE). Under Reformed CAFE, fuel economy standards are based on a truck’s footprint, with larger footprint trucks subject to a lower standard and smaller footprint trucks subject to higher standards. Instead of six footprint categories (a step function) as proposed in the NPRM, Reformed CAFE would be based on a continuous function, meaning a separate fuel economy target for each vehicle of a different footprint. “A particular manufacturer’s compliance obligation for a model year will be calculated as the harmonic average of the fuel economy targets for the manufacturer’s vehicles, weighted by the distribution of manufacturer’s production volumes among the footprint increments.” A manufacturer’s CAFE compliance obligation will vary with its fleet mix. A manufacturer that produces more large footprint light trucks will have a lower required CAFE standard than one that produces more small footprint light trucks.

During MYs 2008–2010, manufacturers may choose to comply with Unreformed CAFE or Reformed CAFE.

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II. STANDARD OF REVIEW

The Administrative Procedure Act (APA), 5 U.S.C. §§ 701–706 (2007), provides that agency action must be set aside by the reviewing court if it is “‘arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.’”

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³⁰ MY 2008: 22.5 mpg; MY 2009: 23.1 mpg; MY 2010: 23.5 mpg.

NHTSA's compliance with NEPA is reviewed under an arbitrary and capricious standard pursuant to the APA. *See, e.g., Nat'l Parks & Conservation Ass'n*, 241 F.3d at 730. With respect to NEPA documents, the agency must take a "hard look" at the impacts of its action by providing "a reasonably thorough discussion of the significant aspects of the probable environmental consequences." *Thomas*, 137 F.3d at 1149 (quoting *Or. Nat. Res. Council v. Lowe*, 109 F.3d 521, 526 (9th Cir.1997)). We must determine whether the EA "foster[s] both informed decision-making and informed public participation." *Native Ecosystems Council v. U.S. Forest Serv.*, 418 F.3d 953, 960 (9th Cir.2005) (quoting *California v. Block*, 690 F.2d 753, 761 (9th Cir.1982)).

III. DISCUSSION

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An agency must prepare an EIS "if 'substantial questions are raised as to whether a project . . . may cause significant degradation of some human environmental factor.'" *Idaho Sporting Cong. v. Thomas*, 137 F.3d 1146, 1149 (9th Cir.1998). Petitioners "need not show that significant effects *will in fact occur*," but only that there are "substantial questions whether a project may have a significant effect." *Id.* at 1150 (internal quotation marks omitted); *see also Blue Mountains Biodiversity Project v. Blackwood*, 161 F.3d 1208, 1212 (9th Cir.1998); *Nat'l Parks & Conservation Ass'n v. Babbitt*, 241 F.3d 722, 730 (9th Cir.2001). "If an agency decides not to prepare an EIS, it must supply a 'convincing statement of reasons' to explain why a project's impacts are insignificant. 'The statement of reasons is crucial to determining whether the agency took a 'hard look' at the potential environmental impact of a project.'" *Blue Mountains Biodiversity Project*, 161 F.3d at 1212 (quoting *Save the Yaak Comm. v. Block*, 840 F.2d 714, 717 (9th Cir.1988)); *see also Nat'l Parks & Conservation Ass'n*, 241 F.3d at 730.

"Whether there may be a significant effect on the environment requires consideration of two broad factors: 'context and intensity.'" *Nat'l Parks & Conservation Ass'n*, 241 F.3d at 731 (quoting 40 C.F.R. § 1508.27). A number of factors should be considered in evaluating intensity, including, "[t]he degree to which the proposed action affects public health or safety," "[t]he degree to which the effects on the quality of the human environment are likely to be highly controversial," "[t]he degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks," "[t]he degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration," "[w]hether the action is related to other actions with individually insignificant but cumulatively significant impacts," and "[t]he degree to which the action may adversely affect an endangered or threatened species or its habitat." 40 C.F.R. § 1508.27(b)(2), (4), (5), (6), (7), (9). An action may be "significant" if one of these factors is met. *Ocean Advocates v. U.S. Army Corps of Eng'rs*, 361 F.3d 1108, 1125 (9th Cir.2004); *see also Nat'l Parks & Conservation Ass'n*, 241 F.3d at 731 (either degree of uncertainty or controversy "may be sufficient to require preparation of an EIS in appropriate circumstances").

NHTSA's finding of no significant impact (FONSI) stated that the agency determined that its Final Rule "will not have a significant effect on the human environment. This finding of no significant impact is based on the attached Final Environmental Assessment (EA). . . ." In the Final EA, NHTSA explained that compared to the "baseline" alternative of extending the MY 2007 light truck CAFE standard through MYs 2008–2011, its evaluated alternatives would have a minor beneficial impact on various environmental resources. NHTSA concluded that "the

final rule would produce, compared to U.S. emissions of CO₂, a small decrease in emissions of CO₂, the primary component of greenhouse gas emissions, under the selected alternative. Accordingly, the agency determined that the action we are adopting today will not have a significant impact on the environment.”

Petitioners argue that the evidence raises a substantial question as to whether the Final Rule *may have* a significant impact on the environment and that NHTSA failed to provide a convincing statement of reasons for why a small decrease (rather than a larger decrease) in the growth of CO₂ emissions would not have a significant impact on the environment. Petitioners note that NHTSA has never evaluated the impacts of carbon emissions from light trucks or other vehicles, much less the effect of any reduction or increase in those emissions on climate change. Petitioners presented evidence that continued increase in greenhouse gas emissions may change the climate in a sudden and non-linear way. Without some analysis, it would be “impossible for NHTSA to know . . . whether a change in GHG emissions of 0.2% or 1% or 5% or 10% . . . will be a significant step toward averting the ‘tipping point’ ” and irreversible adverse climate change.

NHTSA argues that its “conclusion that a 0.2 percent decrease in carbon dioxide emissions will not have a significant impact upon the environment is self-evidently reasonable and consistent” with *City of Los Angeles v. NHTSA*, 912 F.2d 478 (D.C.Cir.1990), and *Public Citizen v. NHTSA*, 848 F.2d 256 (D.C.Cir.1988). NHTSA also argues that the impact of the rule on global warming is too speculative to warrant NEPA analysis.

We conclude that NHTSA’s FONSI is arbitrary and capricious and the agency must prepare an EIS because the evidence raises a substantial question as to whether the Final Rule may have a significant impact on the environment. See *Idaho Sporting Congress*, 137 F.3d at 1149 (holding that an EIS must be prepared “if substantial questions are raised as to whether a project . . . *may* cause significant degradation of some human environmental factor” (alteration in original; internal quotation marks omitted)). Moreover, NHTSA has failed to provide a convincing statement of reasons for its finding of insignificance. See, e.g., *Blue Mountains Biodiversity Project*, 161 F.3d at 1212; *Nat’l Parks & Conservation Ass’n*, 241 F.3d at 730.

Petitioners have raised a “substantial question” as to whether the CAFE standards for light trucks MYs 2008–2011 “*may* cause significant degradation of some human environmental factor,” particularly in light of the compelling scientific evidence concerning “positive feedback mechanisms” in the atmosphere. Among the evidence Petitioners presented to the agency was the following:

[concerns relating to increases in temperature, rising sea levels, impacts on biodiversity, breakdown in marine ecosystems, and many of the other issues discussed in Chapter 1 of this book].

Finally, Petitioners have satisfied several of the “intensity” factors listed in 40 C.F.R. § 1508.27(b) for determining “significant effect.” For example, the Final Rule clearly may have an “individually insignificant but cumulatively significant” impact with respect to global warming. Evidence that Petitioners submitted in the record also shows that global warming will have an effect on public health and safety. Petitioners do not claim (nor do they have to show) that NHTSA’s Final Rule would be the *sole* cause of global warming, and that is NHTSA’s only response on this point.

Petitioners have also satisfied the “controversy” factor. See 40 C.F.R. § 1508.27(b)(4); see *Blue Mountains Biodiversity Project*, 161 F.3d at 1212 (“‘controversial’ is ‘a substantial dispute [about] the size, nature, or effect of the major Federal action rather than the existence of opposition to a use.’” (alteration in

original)). NHTSA received over 45,000 individual submissions on its proposal. We reject NHTSA's argument that "petitioners' controversy does not concern the 'size, nature, or effect' of the new CAFE standards, but rather the desire of some commenters for different regulations that they have not described in any detail." The entire dispute between Petitioners and NHTSA centers on the *stringency* of the MY 2008–2011 light truck CAFE standards — their "size" or "effect."

In light of the evidence in the record, it is hardly "self-evident" that a 0.2 percent decrease in carbon emissions (as opposed to a greater decrease) is not significant. NHTSA's conclusion that a small reduction (0.2% compared to baseline) in the growth of carbon emissions would not have a significant impact on the environment was unaccompanied by any analysis or supporting data, either in the Final Rule or the EA.

Nowhere does the EA provide a "statement of reasons" for a finding of no significant impact, much less a "convincing statement of reasons." For example, the EA discusses the amount of CO₂ emissions expected from the Rule, but does not discuss the potential impact of such emissions on climate change. In the "Affected Environment" section of the EA, NHTSA states that "[i]ncreasing concentrations of greenhouse gases are likely to accelerate the rate of climate change." The agency notes that "[t]he transportation sector is a significant source of greenhouse gas (GHG) emissions, accounting for approximately 28 percent of all greenhouse gas emissions in the United States." From this, NHTSA jumps to the conclusion that "[c]oupled with the effects resulting from the 2003 light truck rule, the effects resulting from the agency's current action are expected to lessen the GHG impacts discussed above."

Table 3-2 of the EA, which shows the potential health effects of criteria air pollutants, is similarly devoid of meaningful analysis or a statement of reasons why the effects would be insignificant. The potential health effect for CO₂ is described: "Increase in greenhouse gases can lead to climate change. Hot temperatures can lead to cardiovascular problems, heat exhaustion, and some respiratory problems. There may be an increased risk of infectious diseases due to increased temperatures. Heat can also increase the concentration of ground-level ozone."

Nor is there any analysis or statement of reasons in the section of the EA that discusses environmental impacts. The EA states that reduction in fuel production and consumption would reduce "contamination of water resources," acid rain, risk of oil spills and contamination, and "lead to minor reductions in impacts to biological resources . . . includ[ing] habitat encroachment and destruction, air and water pollution, greenhouse gases, and oil contamination from petroleum refining and distribution." [Final EA] at 32–33; *see also id.* at 39 (Table 4-7 compares the impacts under the baseline CAFE standard of 22.2 mpg and the analyzed alternatives. It cursorily summarizes the impacts as "slower rate of growth in fuel consumption for light trucks," "reduction of GHG emissions," and "minor benefit [to water and biological resources] from reductions in energy consumption, GHG emissions and extremely small changes in criteria pollutant emissions."); *id.* at 32–33 (citing no supporting data for its conclusions regarding impacts on water and biological resources).

NHTSA's EA "shunted aside [significant questions] with merely conclusory statements," failed to "directly address[]" "substantial questions," and most importantly, "provide[d] no foundation" for the important inference NHTSA draws between a decrease in the rate of carbon emissions growth and its finding of no significant impact. *Found. for N. Am. Wild Sheep*, 681 F.2d at 1179. NHTSA makes "vague and conclusory statements" unaccompanied by "supporting data," and the EA "do[es] not constitute a 'hard look' at the environmental consequences of the action as required by NEPA." *Great Basin Mine Watch v. Hankins*, 456 F.3d 955,

973 (9th Cir.2006). Thus, the FONSI is arbitrary and capricious. See *Klamath-Siskiyou Wildlands Center*, 387 F.3d at 994 (“[T]he problem with the entire table is that it does not provide any objective quantification of the impacts. Instead, the reader is informed only that a particular environmental factor will be ‘unchanged,’ ‘improved,’ or ‘degraded’ and whether that change will be ‘minor’ or ‘major.’ The reader is not told what data the conclusion was based on, or why objective data cannot be provided.”).

The only reason NHTSA provided for why the environmental impact of the Final Rule would be insignificant is that it results in a decreased rate of growth of GHG emissions compared to the light truck CAFE standard for MY 2007. But simply because the Final Rule may be an improvement over the MY 2007 CAFE standard does not necessarily mean that it will not have a “significant effect” on the environment. NHTSA has not explained *why* its rule will not have a significant effect.

Petitioners have raised a substantial question of whether the Final Rule *may* significantly affect the environment. NHTSA acknowledges that carbon emissions contribute to global warming, and it does not dispute the scientific evidence that Petitioners presented concerning the significant effect of incremental increases in greenhouse gases. NHTSA has not provided a “statement of reasons *why* potential effects are insignificant,” much less a “convincing statement of reasons.” See *Blue Mountains Biodiversity Project*, 161 F.3d at 1211 (emphasis added) (internal quotation marks omitted). It asserts simply that the insignificance of the effects is “self-evident[.]” In order that the public and the agency be fully advised, we remand and order the agency to prepare a full EIS.

* * *

Reversed and Remanded.

QUESTIONS AND DISCUSSION

1. In *City of Los Angeles v. NHTSA*, the majority upheld NHTSA’s decision not to prepare an EIS covering its CAFE standards for MYs 1987–1988 and 1989. 912 F.2d at 482. Then-Judge Ruth Bader Ginsburg joined in Judge D. Ginsburg’s opinion on NRDC’s NEPA challenge, and she provided two reasons for her concurrence: “(1) NRDC’s apparent acceptance of NHTSA’s finding that the 1.0 mpg CAFE rollback at issue would yield a ‘maximum theoretical increase of less than one percent in greenhouse gases,’ . . . and (2) NRDC’s failure even to allege that such an increase ‘would produce any *marginal* effect on the probability, the severity, or the imminence’ of the global warming disaster petitioners project.” *Id.* at 504 (citation omitted). The court in *Center for Biological Diversity* stated that “These reasons do not apply here.” 508 F.3d at 557, n. 76. What was different in *Center for Biological Diversity*?

2. Other recent cases have concluded that an EIS was not required. In *North Slope Borough v. Minerals Management Service*, No. 07-CV-0045 (D. Alaska Jan. 8, 2008) (Unpublished, Doc No. 59), the plaintiffs challenged the failure of the Minerals Management Service to prepare a new EIS for oil and gas lease sales in the Beaufort Sea that assessed the climate change impacts of those sales on subsistence and polar bears. The court upheld the decision not to prepare an EIS, concluding that the rate and impact of climate change are largely independent of whether the new lease sales are permitted. *Id.* at 11. In denying injunctive relief to

plaintiffs, the court concluded that “the public interest in energy development favors upholding the scheduled sales. To conclude otherwise would require the Court to engage in multiple levels of speculation regarding climate change, animal migration, and economics, and to conclude that existing federal regulations would not effectively address Plaintiffs’ environmental concerns. This the Court cannot do.” *Id.* at 13.

B. The Scope of the “Effects” Analysis

An essential question for any EA or EIS is the range of effects that must be considered. Under NEPA and regulations promulgated by the Council for Environmental Quality (CEQ), agencies must describe the direct, indirect, and cumulative effects of a proposed project. These environmental effects may include impacts that are ecological, aesthetic, historical, cultural, economic, social, or health related. 40 C.F.R. § 1508.8. Because a great many actions contribute to climate change, agencies will be challenged to identify which impacts are reasonably related to the project and which impacts are reasonably foreseeable.

1. Direct and Indirect Effects

MID STATES COALITION FOR PROGRESS v. SURFACE TRANSPORTATION BOARD

345 F.3d 520 (8th Cir. 2003)

ARNOLD, J. Petitioners challenge the decision of the Surface Transportation Board issued January 30, 2002, giving final approval to the Dakota, Minnesota & Eastern Railroad Corporation’s (DM&E) proposal to construct approximately 280 miles of new rail line to reach the coal mines of Wyoming’s Powder River Basin (PRB) and to upgrade nearly 600 miles of existing rail line in Minnesota and South Dakota. They maintain that in giving its approval the Board violated . . . the National Environmental Policy Act (NEPA). * * *

The Sierra Club argues that SEA [Surface Transportation Board’s Section of Environmental Analysis (SEA)] wholly failed to consider the effects on air quality that an increase in the supply of low-sulfur coal to power plants would produce. Comments submitted to SEA explain that the projected availability of 100 million tons of low-sulfur coal per year at reduced rates will increase the consumption of low-sulfur coal vis-à-vis other fuels (for instance, natural gas). While it is unlikely that this increase in coal consumption would affect total emissions of sulfur dioxide (which are capped nationally at maximum levels by the Clean Air Act Amendments of 1990), the Sierra Club argues that it would significantly increase the emissions of other noxious air pollutants such as nitrous oxide, carbon dioxide, particulates, and mercury, none of which is currently capped as sulfur dioxide is.

Before this court, the Board admits that because of the need to comply with the restrictions in the Clean Air Act Amendments on sulfur dioxide emissions, many utilities will likely shift to the low-sulfur variety of coal that the proposed project would make available. It argues, however, that this shift will occur regardless of whether DM&E’s new line is constructed, since the proposed project will simply provide a shorter and straighter route for low-sulfur coal to be transported to plants already served by other railroad carriers. But the proposition that the demand for coal will be unaffected by an increase in availability and a decrease in price, which is the stated goal of the project, is illogical at best. The increased

availability of inexpensive coal will at the very least make coal a more attractive option to future entrants into the utilities market when compared with other potential fuel sources, such as nuclear power, solar power, or natural gas. Even if this project will not affect the short-term demand for coal, which is possible since most existing utilities are single-source dependent, it will most assuredly affect the nation's long-term demand for coal as the comments to the DEIS [Draft EIS] explained. Tellingly, DM&E does not adopt the Board's argument that the proposed project will leave demand for coal unaffected: Instead, it adopts the more plausible position that SEA was not required to address the effects of increased coal generation because these effects are too speculative.

NEPA requires that federal agencies consider "any adverse environmental effects" of their "major . . . actions," 42 U.S.C. § 4332(C), and the CEQ regulations, which are binding on the agencies, explain that "effects" include both "direct effects" and "indirect effects," 40 C.F.R. § 1508.8. Indirect effects are defined as those that "are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable." *Id.* "Indirect effects may include . . . effects on air and water and other natural systems, including ecosystems." *Id.* The above language leaves little doubt that the type of effect at issue here, degradation in air quality, is indeed something that must be addressed in an EIS if it is "reasonably foreseeable," *see id.* As in other legal contexts, an environmental effect is "reasonably foreseeable" if it is "sufficiently likely to occur that a person of ordinary prudence would take it into account in reaching a decision." *Sierra Club v. Marsh*, 976 F.2d 763, 767 (1st Cir. 1992).

DM&E argues in its brief that "if the increased availability of coal will 'drive' the construction of additional power plants . . . the [Board] would need to know where those plants will be built, and how much coal these new unnamed power plants would use. Because DM&E has yet to finalize coal-hauling contracts with any utilities, the answers to these questions are pure speculation — hardly the reasonably foreseeable significant impacts that must be analyzed under NEPA." Even if this statement is accurate (the Sierra Club has asserted that it is not), it shows only that the *extent* of the effect is speculative. The *nature* of the effect, however, is far from speculative. As discussed above, it is reasonably foreseeable — indeed, it is almost certainly true — that the proposed project will increase the long-term demand for coal and any adverse effects that result from burning coal.

Contrary to DM&E's assertion, when the *nature* of the effect is reasonably foreseeable but its *extent* is not, we think that the agency may not simply ignore the effect. The CEQ has devised a specific procedure for "evaluating reasonably foreseeable significant adverse effects on the human environment" when "there is incomplete or unavailable information." 40 C.F.R. § 1502.22. First, "the agency shall always make clear that such information is lacking." *Id.* Then, "if the information relevant to reasonably foreseeable significant adverse impacts cannot be obtained because the overall costs of obtaining it are exorbitant or the means to obtain it are not known," the agency must include in the environmental impact statement:

- (1) A statement that such information is incomplete or unavailable; (2) a statement of the relevance of the incomplete or unavailable information to evaluating reasonably foreseeable significant adverse impacts on the human environment; (3) a summary of existing credible scientific evidence which is relevant to evaluating the reasonably foreseeable significant adverse impacts on the human environment; and (4) the agency's evaluation of such impacts based upon theoretical approaches or research methods generally accepted in the scientific community.

Id. at § 1502.22(b).

We find it significant that when the Board was defining the contours of the EIS, it stated that SEA would “evaluate the potential air quality impacts associated with the increased availability and utilization of Powder River Basin Coal.” Yet, the DEIS failed to deliver on this promise. Interested parties then submitted comments on the DEIS explaining, for the reasons that we have summarized, why this issue should be addressed in the FEIS [Final EIS]. These parties even identified computer models that are widely used in the electric power industry to simulate the dispatch of generating resources to meet customer loads over a particular study period. According to the commenting parties, these programs could be used to forecast the effects of this project on the consumption of coal. These efforts did not convince SEA, which asserted that “because the 1990 Clean Air Act Amendments mandate reductions in pollutant emissions . . . an assumption of SEA’s analysis was that emissions will definitely fall to the mandated level, producing whatever effect the emissions will have on global warming.” SEA’s “assumption” may be true for those pollutants that the amendments have capped (including, as we have said, sulfur dioxide) but it tells the decision-maker nothing about how this project will affect pollutants not subject to the statutory cap. For the most part, SEA has completely ignored the effects of increased coal consumption, and it has made no attempt to fulfill the requirements laid out in the CEQ regulations.

The Board has stated that this project “is the largest and most challenging rail construction proposal ever to come before [us],” and that the total cost of the project is estimated to be \$1.4 billion, not counting the cost of environmental mitigation. We believe that it would be irresponsible for the Board to approve a project of this scope without first examining the effects that may occur as a result of the reasonably foreseeable increase in coal consumption.

QUESTIONS AND DISCUSSION

1. The court in *Mid States Coalition for Progress* makes a distinction between the extent of an impact and the nature of the impact. What is this distinction? With climate change, will agencies ever be able to evaluate the extent of climate change impacts? Do you think there is any difference between evaluating the nature of a climate change impact versus other types of impacts? How should the Surface Transportation Board evaluate the nature of climate change impacts of the decision to construct hundreds of miles of new rail line to the coal mines of the Powder River Basin?

2. On remand, SEA’s supplemental EIS (SEIS) declared that little additional coal would be consumed as a result of the new rail line and that air emissions of various pollutants, including carbon dioxide, would increase less than 1 percent nationally and regionally as a result of the minimal increase in coal use. In finding that this increase was minimal, the SEA noted that demand for coal would increase even without the new rail line and that the new rail line was just one way of transporting the coal to market. Surface Trans. Board, Decision, Dakota, Minnesota & Eastern RR Corp. Const. into the Powder River Basin, STB Fin. Docket No. 33407, at 11, 16 (Feb. 13, 2006), available at [http://www.stb.dot.gov/decisions/readingroom.nsf/unid/53fe263777b8a00485257116004c24d7/\\$file/36665.pdf](http://www.stb.dot.gov/decisions/readingroom.nsf/unid/53fe263777b8a00485257116004c24d7/$file/36665.pdf). The plaintiffs filed suit again, this time claiming that the SEIS did not address CO₂ from the coal and ignored climate impacts if national coal use expanded by up to 10 percent.

To study the impacts of the project, the Board used the Energy Information Administration’s (EIA) National Energy Modeling System (NEMS), which forecasts coal supply and demand as well as quantifies environmental impacts.

The Board explained that NEMS is “essentially a national and regional modeling tool” that could not be used to obtain the same level of predictive information for the local level. The Board stated that such predictive information was relevant since “there could be an increase in certain air emissions because more PRB coal would be consumed as a result of this project.” With respect to existing credible scientific evidence and its potential impacts, the Board explained further that in order “to reasonably foresee the likely impacts of this project on a local level, [it] would need to know not only what existing or new power plants would actually use DM & E’s service, but also whether they would otherwise not burn PRB coal, not burn as much coal, or burn a different mix of coal.” The Board concluded that this could not “be determined in advance here with any degree of confidence.”

After noting that “the impacts of this project on coal consumption and resulting air emissions would be small” on a national and regional basis and that any potential local air quality impacts were “speculative” and “ultimately unforeseeable,” the Board concluded that it was not necessary to impose additional mitigating conditions on the project.

Mayo Found. v. Surface Transp. Bd., 472 F.3d 545, 555–556 (8th Cir. 2006). After reviewing this information, the court concluded that the Board adequately analyzed the impacts. What, if anything, has changed between the time of the first lawsuit and this one to lead to a different outcome?

3. In *City of Los Angeles* and more recently in *Mayo*, the courts have found one percent contributions to climate change insignificant to trigger NEPA’s requirement to conduct an EIS. In light of the recent information released by the IPCC regarding the impacts of climate change — as well as the Supreme Court’s decision in *Massachusetts v. EPA*, finding a small impact on motor vehicle emissions substantial enough to support Article III standing — do you think the courts have been correct to dismiss these impacts as insignificant? What threshold level of emissions should an agency’s action reach before it is deemed significant? If each agency action must amount to a certain threshold, how many agency actions will go through full NEPA review?

In the next case, *Border Power Plant Working Group v. Dept. of Energy*, plaintiffs challenged an EA for approval of two Presidential Permits, which are required for the siting of a transmission line across a border of the United States. See Exec. Order No. 12038; 10 C.F.R. 300. The transmission lines would connect new power plants in Mexico to the southern California power grid. Must the EA consider only the impacts of the power lines or must it also evaluate emissions from the new power plants in Mexico?

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GROUP v. DEPT. OF ENERGY**
260 F. Supp. 2d 997 (S.D. Cal. 2003)

GONZALEZ, J.

As a threshold matter, the Court must first determine the scope of the environmental review required by NEPA to determine whether the construction of the power plants is within that scope. Plaintiff assumes in its arguments that the actions whose impacts must be analyzed include not only the construction and operation of the actual transmission lines, but also the operation of the power

plants in Mexico to which the lines will be connected. In fact, all, or at least the vast majority, of the complaints of impacts to air quality, water quality, and human health set forth by plaintiff are actually caused by the power plants. Because of this, amicus BCP [Baja California Power] argues that if the "action" at issue here is narrowly limited to the construction and operation of the transmission lines, without regard to the generation of the power, and the emissions of the power plants are not "effects" of that action, then plaintiff's complaints are immaterial to the permits at issue.

. . . The Council for Environmental Quality (CEQ), which is charged with implementing NEPA, has defined a "major federal action" as including "actions with effects that may be major and which are potentially subject to Federal control and responsibility." 40 C.F.R. § 1508.18. Similarly, defendant Department of Energy has defined "action" for NEPA purposes as "a project, plan, or policy . . . that is subject to DOE's control and responsibility." 10 C.F.R. § 1021.104(b). BCP argues that the latter definition necessarily excludes the Mexican power plants from the scope of the action because these plants are outside the regulatory jurisdiction of the United States.

The first key question under the regulatory definitions is whether the plants will be "projects" that are "subject to [Federal] control and responsibility." 10 C.F.R. § 1021.104(b). Clearly, they are not because they are outside the jurisdiction of the United States. Accordingly, defendants correctly did not include the power plants themselves when defining the scope of the proposed action.

Nonetheless, the environmental analysis of the actions might still require consideration of the operation of the power plants if such operation constitutes an "adverse environmental effect" of the granting of the permit to construct and operate the transmission lines. 42 U.S.C. § 4332(C)(ii). NEPA's implementing regulations define "effects" and categorize them as "direct" or "indirect." 40 C.F.R. § 1508.8(a). "Direct effects" are those "which are caused by the action and occur at the same time and place." *Id.* "Indirect effects" are those "which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable." *Id.* Thus, as BCP notes, the question is one of causation.

The question of whether the power plants are effects of the proposed action is central to assessing both the legality of the FONSI and to assessing the adequacy of the environmental assessment (EA). First, in deciding whether to prepare an EIS, an agency must consider "significant indirect effects." *Sylvester v. U.S. Army Corps of Engineers*, 884 F.2d 394, 400, 871 F.2d 817 (9th Cir. 1989). Second, the question of the adequacy of the EA's analysis of the air impacts, water impacts, and alternatives of the proposed actions, depend on whether the plants' adverse environmental impacts are effects of the proposed transmission lines.

* * *

[T]he *Sylvester* court held that in order for an agency to be required to consider secondary (indirect) and cumulative impacts (or effects) of an action other than the proposed action under NEPA, the proposed action and the second action must be "two links of a single chain." In so holding, the *Sylvester* court collected and analyzed the prior cases discussing the question in the Ninth Circuit. *Id.* (citing *Port of Astoria, Oregon v. Hodel*, 595 F.2d 467, 480 (9th Cir. 1979) (agency's EIS had to consider the supply of federal power and the construction of a private magnesium plant that used the power); *Thomas v. Peterson*, 753 F.2d 754, 761 (9th Cir. 1985) (agency's EIS had to consider both a federal road and the federal timber sales that the road would facilitate); and *Colorado River Indian Tribes v. Marsh*, 605 F. Supp. 1425, 1433 (C.D.Cal.1985) (agency had to prepare an EIS that considered both the federal action of stabilizing a river bank and the private

housing built as a result)); see also *id.* at 401 (citing *Friends of the Earth v. Hintz* 800 F.2d 822, 832 (9th Cir. 1986) (agency considered only filled wetlands and not other aspects of a harbor facility in deciding not to prepare an EIS); *Enos v. Marsh* 769 F.2d 1363, 1371–72 (9th Cir. 1985) (agency’s EIS did not have to consider non-federal shore facilities for a new deep draft harbor); *Friends of Earth, Inc. v. Coleman* 518 F.2d 323, 328 (9th Cir. 1975) (agency did not have to prepare an EIS for state funded projects in a partially federally funded airport development)). The court concluded that these cases did not mandate a different result because “the federal and private portions of the projects considered in these cases were joined to each other (links in the same bit of chain) in a way that the golf course [the proposed action under consideration in *Sylvester*] and the remainder of the resort complex (a separate segment of chain) are not.”

Importantly, the basis for the *Sylvester* court’s determination of whether two related actions constituted links of a single chain involved determining whether “each [action] could exist without the other.” It was not enough that the actions might be related or that each “might benefit from the other’s presence.” Accordingly, the question in the present case narrows to whether the transmission lines and the power plants at issue would exist in the absence of the other.

Somewhat confusingly, the *Sylvester* court cites two other Ninth Circuit cases in a footnote, dismissing them because they involved “the impact of federal action rather than the scope of federal action.” *Id.* at 401 n.3 (citing *Methow Valley Citizens Council v. Regional Forester* 833 F.2d 810, 816 (9th Cir. 1987) and *City of Davis v. Coleman* 521 F.2d 661, 671 (9th Cir. 1975)). While it is clear, as the *Sylvester* court implies, that the scope of the proposed action and the impacts of that action are separate questions under NEPA, this appears confusing only because “scope” may also refer to the variety of impacts that a sufficient EA or EIS must address. It is helpful to differentiate then between the scope of the proposed action and scope of the NEPA review. Thus, in the present case, the proposed action does not include the operation of the Mexican power plants. The question remains, however, whether the operation and emissions of those plants must be included within the scope of the NEPA review because they are effects of the proposed federal action. It seems to the Court that many of the cases cited by *Sylvester* court involved both the impact (or effects) of a proposed federal action and the scope of the action. While those cases treated the two concepts as coextensive, this Court finds the cases relevant to the present inquiry only to the extent that they discuss the effects of the proposed action. Thus, the two additional cases cited by *Sylvester* dealing exclusively with the effects of federal action are central to the present analysis.

First, in *Methow Valley Citizens Council v. Regional Forester* 833 F.2d 810, 816–817 (9th Cir. 1987), rev’d on other grounds, *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 109 S. Ct. 1835, 104 L. Ed. 2d 351 (1989), the court first emphasized that NEPA does not recognize any distinction between primary and secondary effects when requiring environmental review of the effects. *Id.* at 816. In discussing how proximate any effects must be to the proposed action to require their inclusion in the NEPA analysis, the Court held:

This court would not require the government to speculate on impacts in order to “foresee the unforeseeable”. However, it must be remembered that the basic thrust of an agency’s responsibilities under NEPA is to predict the environmental effects of proposed action before the action is taken and those effects fully known. Reasonable forecasting and speculation is thus implicit in NEPA, and we must reject any attempt by agencies to shirk their responsibilities under NEPA by labeling any and all discussion of future environmental effects as “crystal ball inquiry”. Thus we

find it imperative that the [agency] evaluate the reasonably foreseeable significant effects which would be proximately caused by implementation of the proposed action.

Id. at 816–17. Similarly, though perhaps more narrowly, the court in *City of Davis v. Coleman*, found that effects must be included in the environmental review when the action is an “indispensable prerequisite” or an “essential catalyst” to the effects. 521 F.2d 661, 674 (9th Cir. 1975).

More recently, the Ninth Circuit reaffirmed that an agency may “limit the scope of its NEPA review to the activities specifically authorized by the federal action where the private and federal portions of the project could exist independently of each other.” *Wetlands Action Network v. U.S. Army Corps of Engineers (WAN)*, 222 F.3d 1105, 1116 (9th Cir. 2000). In general that Court instructed that “deciding whether federal and non-federal activity are sufficiently interrelated to constitute a single federal action for NEPA purposes will generally require a careful analysis of all facts and circumstances surrounding the relationship.”

The WAN court faced a situation, like here, where the federal agency did not have independent jurisdiction over the non-federal action that was a potential effect of the proposed action. See *id.*, at 1117. Furthermore, the court found that the non-federal action “certainly *could* proceed without the [federal action] and . . . is currently proceeding without the [federal action].” *Id.* The non-federal action at issue in WAN, as here, was not financed by federal funding, and federal regulations did not control the design of the non-federal action. *Id.* Finally, the WAN court derived comfort from the fact that the non-federal action had already been subjected to extensive state environmental review.

In sum, Ninth Circuit precedent makes clear that effects must be causally linked to the proposed federal action in order for NEPA to require consideration of those effects in an EA or EIS. In the present case, only BCP puts much weight on the argument that the power plant emissions are not effects of the transmission line project. BCP’s principle argument is that the power transmission lines are not a but-for cause of the LRPC [La Rosita Power Complex] emissions because the LRPC would generate some of its power for the Mexican market without regard to whether the transmission lines are completed, and it could send its export power through the Mexican power grid to the United States via an alternative transmission line. Amicus T-US [Termoelectrica-US] does not make the same argument, presumably because the TDM plant will only be producing power for export to the United States, and the only planned transmission line connecting that plant is the one requiring the permit under consideration. The federal defendants appear to concede, both in the EA itself and their briefs, that they were required to analyze to some extent the impacts of the power plants, although they argue, correctly, that the power plants are not within the scope of the proposed action.

* * *

The LRPC plant is divided into three EAX turbines and one EBC turbine. Two of the EAX turbines are designed to produce power exclusively for sale to a Mexican utility, and it is reasonably foreseeable that very little of this power will flow through the BCP transmission line into the United States. The EA does acknowledge the possibility that under limited circumstances, the domestic generation turbines may provide power to the BCP line. The record shows that the third EAX turbine is anticipated to produce power exclusively for export to the United States. However, the power produced by the EAX export turbine could be transmitted to the United States through an alternative interconnection site. Finally, the EBC turbine is configured and licensed only to sell electricity over the BCP line.

* * *

Considering only the information that the federal defendants had before them at the time they made their final decisions, the Court finds that it was reasonably foreseeable that the two export turbines in the LRPC would use the BCP transmission line to export the entirety of their power. Furthermore, given that the BCP line is the only current means evidenced by the record through which the EBC turbine could transmit its power, the Court finds that the BCP line was a but-for cause of the generation of power at the EBC turbine. Because the EBC turbine and the BCP transmission line are two links in the same chain, the emissions resulting from the operation of the EBC turbine are “effects” of the BCP transmission line that must be analyzed under NEPA. For the same reasons, the Court finds that the operation of the TDM plant is an effect of the T-US transmission line.

Conversely, the Court finds that the two turbines in the LRPC dedicated almost exclusively to the generation of power for the Mexican market are not causally linked to the BCP line in a way that makes the BCP line a necessary prerequisite or essential catalyst to their operation. Because the line of causation is too attenuated between these turbines and the federal action permitting the BCP line, Ninth Circuit authority makes clear that the emissions of the non-export turbines were not effects of the BCP line and that the federal defendants were therefore under no NEPA obligation to analyze their emissions as effects of the action. Additionally, because the record makes clear that the EAX export turbine has an alternative to the BCP line to export its power, the BCP line cannot be considered the but-for cause of the EAX export turbine’s operation. Indeed, the EA concludes that the EAX export turbine would be built regardless of whether the BCP line is permitted. For this reason, the EAX turbine is also not an effect of the action.

[The court then found the EA inadequate because it failed to disclose and analyze the potential environmental impacts from carbon dioxide emissions.]

QUESTIONS AND DISCUSSION

1. In *Border Power*, the court emphasized that the EIS need not consider the Mexican power plants themselves as within the scope of the proposed action. Yet, it declares that the effects of the Mexican power plants must be considered. What is the significance of this distinction?

2. **Connected Actions.** Indirect effects are sometimes confused with “connected actions.” The CEQ regulations define “connected actions” as actions that are “closely related and therefore should be discussed in the same impact statement.” 40 C.F.R. § 1508.25(a). Actions are “connected” if they:

- (i) Automatically trigger other actions which may require environmental impact statements.
- (ii) Cannot or will not proceed unless other actions are taken previously or simultaneously.
- (iii) Are interdependent parts of a larger action and depend on the larger actions for their justification.

Id. For example, courts have considered logging operations and the construction of a road to be “connected actions.” *Save the Yaak Committee v. Block*, 840 F.2d 714, 719 (9th Cir. 1988); *Thomas v. Peterson*, 753 F.2d 754, 758 (9th Cir. 1985). Can you explain how “indirect effects” differ from “connected actions”? Why are the power plants in *Border Power Working Group* evaluated as indirect effects of the

construction of transmission lines into the United States but logging roads and logging operations are connected actions?

3. The construction of new power plants in Mexico to provide electricity in the United States can present interesting international issues as well. Consider that, under the cap-and-trade structure of the Kyoto Protocol discussed in Chapter 5, a country is responsible for those emissions that take place in their country's territory. In a post-Kyoto agreement, the United States might agree to a cap, but Mexico might not. Would it then be possible for the United States to expand its energy consumption by importing coal-generated electricity from Mexico free from any restrictions? How would you recommend the negotiators address such a situation?

2. *Cumulative Impacts*

NEPA regulations define "cumulative" impacts as the "incremental impact of the action when added to other past, present, and reasonably foreseeable future action regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." 40 C.F.R. § 1508.7. Courts have made clear the importance of assessing cumulative impacts:

Cumulative impacts of multiple projects can be significant in different ways. The most obvious way is that the greater total magnitude of the environmental effects . . . may demonstrate by itself that the environmental impact will be significant. Sometimes the total impact from a set of actions may be greater than the sum of the parts.

Klamath-Siskiyou Wildlands Ctr. v. Bureau of Land Mgmt., 387 F.3d 989, 994 (9th Cir. 2004).

Despite the importance of understanding cumulative impacts, knowing where to draw the line, particularly concerning climate change, is difficult. Consider the following discussion of cumulative impacts from *Center for Biological Diversity*, where plaintiffs challenged the adequacy of the NHTSA's discussion of cumulative impacts when setting fuel economy standards.

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508 F.3d 508 (9th Cir. 2007)

The EA catalogues the total tonnage of CO₂ emissions for light trucks for MYs 2005–2011. Table 4-5 of the Final EA lists the amount of fuel consumption and emissions of criteria pollutants and CO₂ emissions. For example, it shows that under Unreformed CAFE, the lifetime CO₂ emissions for light trucks MY 2005–2011 would be 4,979 million metric tons (mmt). Under Reformed CAFE . . . CO₂ emissions would be 4,966 million metric tons. NHTSA estimated that:

together with the previous action raising MY 2005–07 light truck CAFE standards, the various alternatives for the current action will reduce lifetime carbon dioxide (CO₂) emissions from MY 2005–11 light trucks by 122 to 196 million metric tons, or by 2.4 to 3.8 percent *from their level if neither action had been taken*. . . . MY 2008–11 light truck CAFE standards are projected to result in cumulative reductions from the

previous and current actions ranging from 0.2 to 0.3 percent of U.S. greenhouse gas emissions over the lifetimes of MY 2005–11 light trucks.

We conclude that the EA's cumulative impacts analysis is inadequate. While the EA quantifies the expected amount of CO₂ emitted from light trucks MYs 2005–2011, it does not evaluate the “incremental impact” that these emissions will have on climate change or on the environment more generally in light of other past, present, and reasonably foreseeable actions such as other light truck and passenger automobile CAFE standards. The EA does not discuss the *actual* environmental effects resulting from those emissions or place those emissions in context of other CAFE rulemakings. This is a similar deficiency as that found in the Bureau of Land Management's EA in *Klamath-Siskiyou Wildlands Center*, where this court held that the BLM's cumulative impacts analysis was inadequate because “[a] calculation of the total number of acres to be harvested in the watershed is a necessary component of a cumulative effects analysis, but it is not a sufficient description of the actual environmental effects that can be expected from logging those acres” and “stating the total miles of roads to be constructed is similar to merely stating the sum of the acres to be harvested — it is not a description of the *actual* environmental effects.” 387 F.3d at 995.

* * *

We agree with Petitioners that “[b]y allowing particular fuel economy levels, which NHTSA argues translate directly into particular tailpipe emissions, NHTSA's regulations are the proximate cause of those emissions just as EPA Clean Air Act rules permitting particular smokestack emissions are the proximate cause of those air pollutants and are unquestionably subject to NEPA's cumulative impacts requirements.” Thus, the fact that “climate change is largely a global phenomenon that includes actions that are outside of [the agency's] control . . . does not release the agency from the duty of assessing the effects of *its* actions on global warming within the context of other actions that also affect global warming.” The cumulative impacts regulation specifically provides that the agency must assess the “impact of the action when added to other past, present, and reasonably foreseeable future actions *regardless of what agency (Federal or non-Federal) or person undertakes such other actions.*” 40 C.F.R. § 1508.7; *see also Res. Ltd., Inc. v. Robertson*, 35 F.3d 1300, 1306 (9th Cir.1994) (“The Forest Service says that cumulative impacts from non-Federal actions need not be analyzed because the Federal government cannot control them. That interpretation is inconsistent with 40 C.F.R. § 1508.7, which specifically requires such analysis.”).

The impact of greenhouse gas emissions on climate change is precisely the kind of cumulative impacts analysis that NEPA requires agencies to conduct. Any given rule setting a CAFE standard might have an “individually minor” effect on the environment, but these rules are “collectively significant actions taking place over a period of time.” 40 C.F.R. § 1508.7; *see also Native Ecosystems Council*, 304 F.3d at 897 (holding that the Forest Service's road density standard amendments must be subject to cumulative impacts analysis because otherwise, “the Forest Service will be free to amend road density standards throughout the forest piecemeal, without ever having to evaluate the amendments' cumulative environmental impacts.”); *City of Los Angeles v. NHTSA*, 912 F.2d 478, 501 (D.C.Cir.1990) (Wald, C.J., dissenting) (“[W]e cannot afford to ignore even modest contributions to global warming. If global warming is the result of the cumulative contributions of myriad sources, any one modest in itself, is there not a danger of losing the forest by closing our eyes to the felling of the individual trees?”), *overruled on other grounds by Fla. Audubon Soc. v. Bentsen*, 94 F.3d 658 (D.C.Cir.1996). Thus, NHTSA must provide the necessary contextual information about the cumulative and incremental environmental impacts of the Final Rule in light of other CAFE rulemakings and other

past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions.

QUESTIONS AND DISCUSSION

The potential scope of a cumulative impacts analysis is very broad — agencies must evaluate the incremental impact of the action when added to past, present, and reasonably foreseeable actions. In the climate change context, what are past, present, and reasonably foreseeable actions?

C. Alternatives

The CEQ regulations describe an EIS's discussion of alternatives to the proposed project as the heart of the EIS. 40 C.F.R. § 1502.14. Agencies must “rigorously explore and objectively evaluate all reasonable alternatives,” including a “no action” alternative and alternatives within the jurisdiction of other agencies. *Id.* It should “present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public.” *Id.* “The rule of reason guides both the choice of alternatives as well as the extent to which the [NEPA analysis] must discuss each alternative.” *Public Citizen v. Department of Transp.*, 316 F.3d 1002, 1028 (9th Cir. 2003). Agencies must consider alternatives in an EA. In climate change litigation, the question of alternatives will be central to most litigant's claims. Is 35 mpg a reasonable alternative to CAFE standards of 27.5 mpg? Is a nuclear power plant and a range of conservation measures reasonable alternatives to a coal-fired power plants? Consider the range of alternatives presented by the NHTSA when considering fuel economy standards.

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In the EA, NHTSA considered a very narrow range of alternatives. All the alternatives evaluated were derived from NHTSA's cost-benefit analysis. * * *

These alternatives are hardly different from the option that NHTSA ultimately adopted. . . . The entire range of alternatives considered in the EA ranged from “22.2 to 22.7 mpg for MY 2008, 22.2 to 23.3 mpg for MY 2009, and 22.2 to 23.6 mpg for MY 2010.” The estimated lifetime fuel and energy use by MY 2008–2011 light trucks under the alternatives ranged from a 1.8 to 2.6 percent decrease from “baseline,” and the estimated lifetime emissions of CO₂ ranged from 2,767 to 2,840 mmt, which is extremely small compared to the overall volume of emissions.

NHTSA acknowledged that “the range of impacts from the considered alternatives is very narrow and minimal.” However, the agency justified its choice of range and refusal to consider other alternatives on the ground that “standards more stringent than those represented by the alternatives would not satisfy the statutory requirement to establish standards . . . that are both technologically feasible and economically practicable. . . . NEPA's requirements must be applied in light of the constraints placed on the agency by EPCA.” Once again, NHTSA falls back on its contention that it had no discretion to consider setting higher

CAFE standards. As before, we conclude that this argument is flawed.

NHTSA also erroneously contends that Petitioners have not identified any specific alternative the agency should have considered. To the contrary, Environmental Defense submitted a detailed appendix to its comment titled, "Revised Benefit-Cost Analysis for Calculating Optimal CAFE Targets." In this document, Environmental Defense performed a marginal cost-benefit analysis, using a variety of different assumptions and inputs. Table A-1 set forth 28 different possible CAFE standards for MY 2011 (including NHTSA's figure). On the basis of its calculations, it recommended a final rule that would increase CAFE standards at a rate of 4% per year and achieve a standard of 26 mpg by MY 2011.

QUESTIONS AND DISCUSSION

1. The court in *Center for Biological Diversity* called the NHTSA's range of alternatives inadequate. What do you think constitutes a reasonable fuel economy standard?

2. Recall that in *Border Power Plant Working Group*, the Department of Energy was required to assess the environmental impacts relating to the construction of transmission lines as well as the effects of the new power plants. What are reasonable alternatives to this project? The Department of Energy analyzed three alternatives to the proposed project: a "no action" alternative and two alternative locations for the transmission lines. Is that sufficient? Should reasonable alternatives relate to the construction and operation of the power plants themselves, even if they are not within the jurisdiction of any U.S. agency? Plaintiffs argued that the Department of Energy could condition permits to operate the transmission lines on the commitment of the project proponents to implement state-of-the-art emissions control systems, mitigation through offsets in existing sources, and the use of dry cooling or parallel dry-wet cooling to condense steam for producing energy. The court agreed:

[T]he agencies were obligated to set forth in the EA "the range of alternatives . . . sufficient to permit a reasoned choice." *Methow Valley Citizens Council*, 833 F.2d at 815. Although defendants argue that "international sensitivities" preclude conditioning the permits from being a reasonable and feasible alternative, such a discussion belongs in the EA's alternative analysis rather than a litigation brief. Furthermore, the Court is unconvinced that the federal government's conditioning of a permit to construct transmission lines within the government's jurisdiction to ameliorate negative environmental effects within the United States necessarily offends international principles of law. The condition would not be a direct regulation of the Mexican power plants; those plants could still choose to sell their power to the Mexican market or transmit their power via an alternate route rather than meet the condition.

Plaintiff bears the burden of showing that the agency was alerted to the specific alternative at issue before it prepared the EA in question. This requirement helps ensure that the alternative was not so remote and speculative as to have precluded the agencies from ascertaining the possibility. In the present case, commenters, including plaintiff, clearly proposed withholding the permits until the federal defendants could be certain that the power generation met certain environmental standards. Accordingly, the Court is hard-pressed to find that the proposed alternative could not be reasonably ascertained by the agencies during their delibera-

tions. Because the Court finds that the conditioning of the permits is a reasonable and feasible alternative within the nature of the proposed actions, the Court finds that the analysis of alternatives in the EA was inadequate in this regard.

Border Power Plant Working Group v. Dept. of Energy, 260 F. Supp. 2d at 1030–1031. Do you agree that those alternatives are reasonable?

3. Mitigation Measures. An EIS must also include a discussion of mitigation measures. 40 C.F.R. § 1502.16. Mitigation includes avoiding the impact altogether, minimizing impacts by limiting the degree and magnitude of the action, rectifying the impact through rehabilitation or restoration, reducing or eliminating the impact over time by preservation and maintenance operations during the life of the project, and compensating for the impact by replacing or providing substitute resources or environments. *Id.* at § 1508.20. When making its final decision concerning a proposed project, the agency must “[s]tate whether all practicable means to avoid or minimize environmental harm from the alternative selected have been adopted, and if not, why they were not.” 40 C.F.R. § 1505.2(c). While courts have found an agency’s discussion of mitigation inadequate, *Neighbors of Cuddy Mountain v. U.S. Forest Serv.*, 137 F.3d 1372, 1381 (9th Cir. 1998), the Supreme Court has also stated that NEPA does not include “a substantive requirement that a complete mitigation plan be actually formulated and adopted[.]” *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 352 (1989). What kind of mitigation measures could NHTSA propose? In *Border Power Plant Working Group*, what kind of measures could the Department of Energy propose to mitigate the impacts of the transmission lines?

4. Having read this section, what do you think the benefits are of discussing the climate change impacts of a proposed action in an EIS? How do you think the legal analysis will change if climate science continues to show increasingly significant impacts?

5. On February 28, 2008, the International Center for Technology Assessment (ICTA), Natural Resources Defense Council, and Sierra Club petitioned the CEQ to clarify that climate change analyses must be included in all federal environmental review documents. The groups specifically requested that CEQ (1) amend its NEPA regulations to include language clarifying that NEPA implementing regulations require that climate change effects be addressed in NEPA compliance documents, including EAs and EISs; and (2) issue a CEQ Guidance Memorandum that includes instructions to all federal agencies on how, where, and when to best integrate climate change analyses into their respective NEPA processes. Petition Requesting that the Council on Environmental Quality Amend Its Regulations to Clarify that Climate Change Analyses Be Included in Environmental Review Documents (Feb. 28, 2008). How would such regulations and guidance be useful?

6. Foreign Cases. Courts in other countries are also addressing the climate change impacts of development projects. In Australia, when a planning panel considered an amendment to a plan to extend the operation of a major coal-fired power station by 20 years, the Victorian Civil and Administrative Tribunal declared that the Victoria Planning and Environment Act 1987 (Vic) required the panel to consider submissions about the greenhouse gas implications of using brown coal. *Australian Conservation Foundation v. Minister for Planning* [2004] VCAT 2029 (29 October 2004). *See also* *Gray v. The Minister for Planning* [2006] NSWLEC 720 (the greenhouse gas impacts of burning coal must be taken into account in the environmental impact assessment of new coal mines). *But see* *Wildlife Preservation Society of Queensland Proserpine/Whitsunday Branch Inc v. Minister for the Environment & Heritage & Ors* [2006] FCA 736 (15 June 2006) (finding that the limited discussion of the indirect effects of GHG emissions on Australian World Heritage properties resulting from two coal mines was adequate under the

Australian Environmental Protection and Biodiversity Conservation Act of 1999).

In New Zealand, a Court of Appeal ruled that the Resource Management Act (RMA) did not require Genesis Energy, a State-owned enterprise wanting to build a gas-fired power plant, to consider the impact of greenhouse gases on climate change when the greenhouse gases are from non-renewable energy sources. *Genesis Power Limited v. Greenpeace New Zealand Incorporated*, Court of Appeal [2007] NZCA 569 (*Genesis Power*), available at: <http://jdo.justice.govt.nz/jdo/Search.jsp>. The decision overruled a 2007 decision in *Greenpeace New Zealand v. Northland Regional Council*, [2007] NZRMA 87 (the *Mighty River* case). *Genesis Power* involved an application for consent to build a gas-fired electricity generating plant. Under Section 104E of the RMA, the consent authority, when considering an application to discharge greenhouse gases, must *not* have regard to the effects of such a discharge on climate change, except to the extent that the use and development of renewable energy enables a reduction in the discharge into air of GHGs. The Environment Court in the *Mighty River* case concluded that Section 104E allowed the consent authority to consider the effects of climate change only in the context of applications to use or develop renewable energy that would enable a lowering of GHGs. The High Court overturned that decision, declaring:

If the application for a discharge permit . . . includes no proposal which . . . would enable a “reduction into air of greenhouse gases” by the “use and development of renewable energy” then that . . . is a factor the consent authority is entitled to take into account in deciding whether to exercise its discretion and grant the resource consent.

* * *

[Section 104E] enables the consent authority to balance [the] proposed activity alongside any proposal by the applicant which would effect “reduction in the discharge into air of greenhouse gases” by an activity which involves the “use and development of renewable energy . . . relative to the use and development of non-renewable energy” and to that extent to have regard to climate change.

The court in *Genesis Power*, however, found that the *Mighty River* approach would impose substantial burdens on consenting authorities to identify alternatives using renewable energy and the significance of the project’s GHG emissions on climate change. The Court of Appeal thus concluded that Section 104E only requires a consenting authority to consider the effects of climate change in applications involving the use of renewable sources of energy production. *Genesis Power*, at para. 40. Moreover, it concluded that in applications involving non-renewable energy production, a consent authority is *not* required to:

- a. Compare the proposal advanced by the applicant with a hypothetical proposal using renewable sources.
- b. Treat the non-use of renewable sources of energy as a negative factor counting against the grant of consent.
- c. Assess the extent to which GHG emissions associated with the proposal would have an effect on climate change.

Id. at para. 41.

7. For a summary of all NEPA litigation related climate change, see Joseph Mendelson III, *Surveying the National Environmental Policy Act and the Emerging Issues of Climate Change, Genetic Engineering and Nanotechnology* (Feb. 13, 2008).

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. Unlike flooding, wildfires, and other natural disturbances, climate change will have more 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, may eventually 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 and mitigate U.S. greenhouse gas emissions. In response to petitions from environmental organizations, the U.S. Fish & Wildlife Service (FWS) has listed elkhorn and staghorn corals as threatened species in part due to the effects of climate change. Most recently, the FWS listed the polar bear as a threatened species due to climate change. Section A introduces the main provisions of the ESA before Section B looks at how the ESA may help protect polar bears 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 future.” 16 U.S.C. § 1532(20). The decision to list a species is 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). The Secretary of Interior, through the 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: a prohibition against taking, development of a recovery plan, consultation to ensure that Federal actions do not jeopardize the continuing survival of listed species or adversely affect their critical habitat, and, in the absence of a special rule for threatened species, a prohibition against “taking.” The FWS and NMFS 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. *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.

2. *Designation of Critical Habitat*

The ESA requires the FWS (or NMFS), “to the maximum extent prudent and determinable,” to designate critical habitat at the time a species is determined to be 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 which 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 FWS designates critical habitat, it must “tak[e] into consideration the economic impact” of designating any particular area as critical habitat. The FWS may refuse to designate critical habitat if the benefits of exclusion outweigh the benefits of designating the area. However, it may not refuse to designate an area if it determines, 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). Once critical habitat is designated, it is subject to the consultation provisions described below.

3. *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 affect” listed species or critical habitat, formal consultation is not required so long as the expert agency concurs. 50 C.F.R. § 402.14(b). If, however, the agency determines that the proposed action “may affect” a listed species or its critical habitat, formal consultation is mandatory. 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”) which sets forth the expert agency’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 consulting agency’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.* If the biological opinion concludes that the activity will not cause jeopardy or adverse modification, or that “reasonable and prudent alternatives” to the agency action will avoid jeopardy and adverse modification and that the incidental taking of endangered or threatened species will not violate Section 7, then FWS or NMFS may issue 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).

4. *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 may be needed to 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 is required to provide estimates of when recovery measures will be completed. *Defenders of Wildlife v. Babbitt*, 130 F. Supp. 2d 121 (D.D.C 2001).

Because each of the three elements of a recovery plan must be undertaken “to the maximum extent practicable,” the FWS and NMFS have discretion to articulate a satisfactory explanation as to why, e.g., objective criteria cannot be practicably incorporated 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*, 903 F. Supp. at 107.

B. Polar Bears, Climate Change, and the ESA

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 the FWS to list the polar bear (*Ursus maritimus*) as a threatened species under the ESA. More than three years later, on May 15, 2008, the 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. 28212, 28213–28214 (May 15, 2008) [hereinafter Polar Bear Determination].

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 FWS’s determination to designate it as a threatened species. As you read, consider the following questions:

- Does driving a CO₂-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 that FWS consult to ensure that a new 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. A Dependency on Diminishing Sea Ice

Polar bears are almost completely dependent on ice. Indeed, in some languages, they are called “ice bears.” Polar bears 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 Determination, 73 Fed. Reg. at 28,213–28,214. 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 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, found declines in sea ice extent up to 9.8 percent and 9.1 percent, respectively, per decade. *Id.* at 28,221.

Similarly, the area of Arctic sea ice is also declining. In fact, it reached an historic low of 2.92 million sq km (1.13 million sq mi) on September 16, 2007, 27 percent lower than the previous record low in 2005. Moreover, this record differed from previous lows, because it covered the entire Arctic Basin, not only certain sectors (North Atlantic, Beaufort/Bering Sea, etc.). *Id.* at 28,222.

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. *Id.* 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 28,224–28,225.

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 U.S. scientists now say that Arctic sea ice is in a "downward spiral" that will cause ice-free September conditions as early as 2030. Others believe ice-free Arctic summers will arrive much earlier — by 2013.

2. *Polar Bears Are Threatened with Extinction*

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 determination, the FWS

described a large number of reasons why it expects polar bear populations to decline as a result of diminishing sea ice. The following summarizes these conclusions:

FWS, POLAR BEAR DETERMINATION

73 Fed. Reg. at 28,253, 28,292–28,293

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 the 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).

3. *Can the ESA Save the Polar Bear from Climate Change?*

The petitioners to list the polar bear as threatened had high hopes for using the ESA to mitigate greenhouse gas emissions in the United States. Both through Section 7's consultation provisions and Section 9's take prohibitions, petitioners believed that the ESA would compel the United States to reduce emissions from a wide range of activities, including power plants, because these activities would "jeopardize the continued existence of a species" or result in a "take" of polar bears. Consider the petitioner's arguments and FWS's responses.

a. *Jeopardy and Adverse Modification of Critical Habitat*

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

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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 [Traffic] 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 DETERMINATION

73 Fed. Reg. 28,299–28,300

The 9th Circuit Court of Appeals has determined that the Service cannot use the consultation process or the issuance of an Incidental Take Statement as a form of regulation limiting what are otherwise legal activities by action agencies, if no incidental take is reasonably likely to occur as a result of the Federal action (*Arizona Cattle Growers’ Association v. U.S. Fish and Wildlife Service*, 273 F.3d 1229 (9th Cir. 2001)). In that case, the court reviewed several biological opinions that were the result of consultations on numerous grazing permits. The 9th Circuit analyzed the Service’s discussion of effects and the incidental take statements for several specific grazing allotments. The court found that the Service, in some allotments, assumed there would be “take” without explaining how the agency action (in this case, cattle grazing) would cause the take of specific individuals of the listed species. Further, for other permits the court did not see evidence or argument to demonstrate how cattle grazing in one part of the permit area would take listed species in another part of that permit area. The court concluded that the Service must “connect the dots” between its evaluation of effects of the action and its assessment of take. That is, the Service cannot simply speculate that take may occur. The Service must first articulate the causal connection between the effects of the action under consultation and the anticipated take. It must then demonstrate that the take is reasonably likely to occur.

The significant cause of the decline of the polar bear, and thus the basis for this action to list it as a threatened species, is the loss of arctic sea ice that is expected to continue to occur over the next 45 years. The best scientific information available to us today, however, has not established a causal connection between specific sources and locations of emissions to specific impacts posed to polar bears or their habitat.

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.

QUESTIONS AND DISCUSSION

1. The FWS relies on the definition of “indirect effects” to conclude that:

For those effects beyond the footprint 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, effects are only appropriately considered in a section 7 analysis 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 the proposed action, an effect, and an impact to the species and there must be a reasonable certainty that the effect will occur.

FWS, Interim Final Rule, Special Rule for the Polar Bear, 73 Fed. Reg 28,306, 28,312 (May 15, 2008). 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.

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

2. FWS finds support for its interpretation in *Arizona Cattle Growers' Association*. In that case, the court found that the FWS had impermissibly issued incidental take permits that restricted grazing where the FWS had not (1) determined that a listed species occurred in the grazing area at issue or (2) determined that grazing would affect a listed species. Instead, FWS based its determination to issue incidental take permits on general evidence of the possible effects of livestock grazing on the habitats of listed species. Is that the situation that exists here? Do we only have general information to conclude that emissions from a coal-fired power plant in New Jersey will affect polar bears?

3. 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 10,203, 10,212 (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 the FWS's polar bear ruling, stating that "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), available at http://gulcfac.typepad.com/georgetown_university_law/2008/05/climate-hypocri.html. Revisit Section A.3, 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?

4. Subsequent to the listing of the polar bear as a threatened species, FWS made several changes to the ESA's consultation provisions, including several related specifically to climate change. The new rules, for example, define "direct effects" and redefine "indirect effects" as follows:

Direct effects are the immediate effects of the action and are not dependent on the occurrence of any additional intervening actions for the impacts to species or critical habitat to occur. Indirect effects are those for which the proposed action is an essential cause, and that are later in time, but still are reasonably certain to occur. If an effect will occur whether or not the action takes place, the action is not an essential cause of the indirect effect. Reasonably certain to occur is the standard used to determine the requisite confidence that an effect will happen.

50 C.F.R. § 402.02. In its notice of the final rule, FWS explained that "if an indirect effect would occur regardless of the action, then the action is not an essential cause of that effect, and it would not be appropriate to consider its effects as an effect of an action." 73 Fed. Reg. 76,272, 76,278 (Dec. 16, 2008). Under these definitions, do you think climate change impacts can be considered direct or indirect effects of a project?

In addition, the new rules allow the action agency to decide that formal consultation is not needed without the concurrence of the FWS or NMFS in the following circumstances:

- (b) Federal agencies are not required to consult on an action when the direct and indirect effects of that action are not anticipated to result in take and:
 - (1) Such action has no effect on a listed species or critical habitat; or
 - (2) The effects of such action are manifested through global processes and:
 - (i) Cannot be reliably predicted or measured at the scale of a listed species' current range, or
 - (ii) Would result at most in an extremely small, insignificant impact on a listed species or critical habitat, or
 - (iii) Are such that the potential risk of harm to a listed species or critical habitat is remote; or
 - (3) The effects of such action on a listed species or critical habitat:
 - (i) Are not capable of being measured or detected in a manner that permits meaningful evaluation; or
 - (ii) Are wholly beneficial.

50 C.R.R. § 402.03. Paragraph 2, in particular, was intended to preclude consultation for projects having climate change impacts:

The phrase "manifested through global processes" covers those effects that are the result of a specific source but become well mixed and diffused at the global scale such that they lose their individual identity. The combined effect of any particular source and other sources then becomes a potential contributor to a separate phenomenon with possible global impacts. Typically, however, the contribution of any particular source to the global process that then affects the local environment is very, very small. The most topical example of effects that would be manifested only through a global process is the effects of individual sources of greenhouse gas emissions and their contribution to global climate change and warming.

* * *

Even after the threshold of the effect being manifested through global processes, there are other limiting factors [under paragraph (b)(2)]. In the context of greenhouse gases, current models, though capable of quantifying the contribution to changes in global atmospheric greenhouse gas concentrations and temperature, do not allow us to quantitatively link an individual action to localized climate impacts relevant to consultation. However, based on the best scientific information available, we are presently able to conclude that the impacts of a particular source are likely to be extremely small. For example, in a recent exchange of letters, EPA provided a model-based analysis that projected that even the emissions of a very large coal-fired power plant would likely result in a rise in the maximum global mean temperature of less than one-thousandth of a degree.

Finally, to attempt to regulate effects at a global scale would have the untenable consequence of transforming the "action area" for consultation into the globe itself, which would eviscerate any meaningful limit on the concept of "action area" and defy analysis. The concept of "action area," as

established in the 1986 regulations and unchanged by this rule, is an important and necessary tool to keep consultations manageable and tied to the particular action under consultation. In a global context, the concept of “action area” would be rendered meaningless.

73 Fed. Reg. at 76,282–76,283. On March 3, 2009, President Obama directed the Secretaries of the Interior and Commerce to review the December regulation to determine whether new rules would better promote the purposes of the ESA. In the meantime, he directed all agencies “to exercise their discretion, under the new regulation, to follow the prior longstanding consultation and concurrence practices involving the FWS and NMFS.” Memorandum from Barack Obama to Heads of Executive Departments and Agencies: Endangered Species Act, Mar. 3, 2009

5. Whether FWS must engage in Section 7 consultation to determine whether CO₂-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*, 2008 WL 1766996 (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. Is this a practical way to implement the jeopardy requirements of Section 7? That is, FWS should not be asked to assess a project’s indirect climate change impacts on a species. Instead, 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, the FWS must engage in a consultation 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).

6. 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 and the polar bear 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 once such a program is in place. *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?

7. The designation of critical habitat, especially critical habitat currently outside a species’ range, is likely to be a crucial tool to allow wildlife to adapt to climate change because many species will shift their ranges as they respond to climate and climate-caused ecological changes. Concerning polar bears, the FWS has already 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, for denning, and terrestrial habitats used by polar bears for denning and reproduction for the recruitment of new animals into the population, as well as for seasonal use in traveling or resting. Nonetheless, the FWS 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 nurturing (*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 Determination, 73 Fed. Reg. at 28,298. Do you think the FWS is right that further time is needed to determine critical habitat? Will designating critical habitat be helpful for the polar bear? In the words of the ESA, would it be “prudent” to designate critical habitat? To what extent do you think the rationale provided by FWS will apply to any species listed due to climate change?

8. 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”? The FWS could also establish an “experimental population” under Section 10(j) of the ESA by releasing individuals of a species into a new environment, provided that the 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?

b. Prohibitions against “Taking” Polar Bears

As with Section 7, petitioners had hoped that 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.

Cummings 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 Determination, the 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.” The FWS was quick to add, however, that the ESA also provides for exceptions to the take prohibitions. The FWS may also develop a special rule under Section 4(d) tailored to the conservation needs of a threatened species instead of applying the general threatened species regulations.

The FWS has proposed a 4(d) rule that allows takes otherwise consistent with the Marine Mammal Protection Act (MMPA) and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). Under the rule, Alaska Natives may continue to hunt polar bears for subsistence purposes and sell authentic native articles of handicrafts or clothing deriving from polar bears taken for subsistence purposes. Subject to the requirements of the MMPA, the special rule authorizes scientific research, enhancing the survival or recovery of a species, and photography, even if those activities might otherwise violate Section 9 of the ESA. The special rule closes an MMPA exception that allowed the importation of sport-hunted polar bear trophies from Canada (the exception did not apply to trophies from other range States). Moreover, the FWS will authorize incidental takes in the course of otherwise lawful activities, provided that such taking will have no more than a negligible impact on the species and, for Alaskan polar bears, will not have an unmitigable adverse impact on the availability of the species for taking for subsistence use by Alaska Natives. Incidental takes in the course of fishing activities must also comply with the requirements of the MMPA. FWS, Special Rule for the Polar Bear, 73 Fed. Reg. 28,306 (May 15, 2008).

QUESTIONS AND DISCUSSION

1. The FWS never specifically states that activities that indirectly affect polar bears, such as GHG emissions from an automobile or coal-fired power plant, do not constitute “harm” within the meaning of Section 9. However, its conclusions concerning Section 7 suggest that it does not plan to enforce Section 9 in such circumstances. Is that the correct outcome? The polar bear petitioners don’t think so, and they have initiated litigation to challenge the agency’s interpretation. Consider the arguments of petitioners:

A rule promulgated pursuant to ESA Section 4(d) must be “necessary and advisable to provide for the conservation” of the species. 16 U.S.C. § 1533(d). *See, e.g.,* *Sierra Club v. Clark*, 755 F.2d 608, 612–13 (8th Cir. 1985) (Secretary’s discretion to issue regulations under ESA Section 4(d) “is limited by the requirement that the regulations he is to issue must provide for the conservation of threatened species” (emphasis in original)); *State of Louisiana, ex rel. Guste v. Verity*, 853 F.2d 322, 332–33 (5th Cir. 1988). “Conservation” is defined as “the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which” ESA protection is no longer required. 16 U.S.C. § 1532(3). The term “conservation” includes ensuring a species’ survival and promoting its recovery. *Gifford Pinchot Task Force v. U.S. Fish & Wildlife Service*, 378 F.3d 1059, 1070 (9th Cir. 2004). The Secretary’s authority to promulgate a 4(d) rule authorizing take of polar bears is therefore limited to those measures that are “necessary and advisable” to provide for the survival and recovery of the species.

The Interim Final 4(d) Rule exempts all activities that take polar bears from the ESA’s prohibitions so long as such activities are consistent with the existing statutory requirement of the MMPA and CITES, including activities that will lead to harm to and death of polar bears. In other words, the 4(d) Rule completely eviscerates the protections of Section 9 and 50 C.F.R. § 17.31 that would apply to the bear absent the rule. The Final Rule provides no rational justification for eliminating these protections, and doing so cannot possibly be construed as “necessary and advisable” to provide for the survival and recovery of the polar bear.

Letter from Petitioners to Dirk Kempthorne, Sixty Day Notice of Intent to Sue; Failure to List the Polar Bear as an Endangered Species and Designate Critical Habitat and Unlawful Authorization of Take of Polar Bears (May 15, 2008).

Now consider the arguments of Professor J.B. Ruhl:

J.B. RUHL, CLIMATE CHANGE AND THE ENDANGERED SPECIES ACT: BUILDING BRIDGES TO THE NO-ANALOG FUTURE 88 B.U. L. REV. 1 39–42 (2008)*

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

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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 [Supreme] 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.

Note carefully the causal chain that Professor Ruhl describes. Plaintiffs will 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. While acknowledging the substantial difficulties in applying the ESA’s take prohibition to greenhouse gas emitting activities, Professor Ruhl states that certain activities, such as adaptation to climate change, may lend themselves more to Section 9. Will plaintiffs, such as the Center for Biological Diversity, be satisfied with this limited application of Section 9?

3. **Incidental Takes.** Under the Marine Mammal Protection Act (MMPA), 16 U.S.C. § 1371(a)(5)(A), the FWS has 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. This rule will be in effect through August 2, 2011. 71 Fed. Reg. 43,926 (Aug. 2, 2006). The FWS has also proposed regulations to authorize 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. 72 Fed. Reg. 30,670 (June 1, 2007). In light of the conservation status of polar bears, should the FWS allow the incidental take of any polar bears?

c. *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 v. Babbitt*, 903 F. Supp. 96, 103 (D.D.C. 1995). In that sense, climate change and polar bears pose special challenges for recovery plans. According to attorneys for the Center for Biological Diversity, “There 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 the 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 this 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, the 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, the FWS reviewed a number of domestic and international treaties relating to habitat and polar bear conservation. It did not, however, refer to the UN Framework Convention on Climate Change 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 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 has asked the FWS to list ringed, bearded, spotted and ribbon seals and the Pacific walrus, all ice-dependent species, as threatened or endangered.

IV. THE CLEAN WATER ACT

A. Overview

Congress enacted the Clean Water Act (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 to 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 emphases on technology-based treatment and protection of receiving water quality has made the CWA one of the most effective — and onerous — pollution control laws in effect in the United States.

However, these controls apply only where the “jurisdictional triggers” of Section 301(a) are satisfied. In other words, unless a release of pollution qualifies as (1) any addition, (2) of any pollutant, (3) into navigable waters, (4) from any point source, it will not trigger the Section 301(a) discharge prohibition or the Section 402 NPDES permit program. The CWA provides statutory definitions of the terms “navigable waters,” “pollutant,” and “point source,” and a considerable body of case law has developed to further define these terms and the meaning of the word “addition.” While the nuances of these definitions are beyond the scope of this section, the definitions are summarized as follows. First, a “point source” includes “any discernable, confined and discrete conveyance” such as any pipe, ditch, or tunnel, but excludes return flows from agricultural irrigation waters. 33 U.S.C. § 1362(14). (In contrast, nonpoint sources of pollution are “non-discrete sources,” such as runoff from a farmland or timber harvesting, and are the responsibility of the states with certain federal oversight.). Second, the term “pollutant” includes

“heat,” which could become important for waters affected by climate change, as well as “industrial, municipal, and agricultural wastes.” 33 U.S.C. § 1362(6). Third, “navigable waters” are defined to include any “waters of the United States.” 33 U.S.C. § 1362(7). Several Supreme Court cases have limited the term to include navigable-in-fact waterways, as well as tributaries to navigable-in-fact waters, if the tributaries have a “substantial nexus” with such waters. *See Solid Waste Agency of N. Cook County v. U.S. Army Corps of Eng’rs*, 531 U.S. 159, 174 (2001) (invalidating regulation extending definition of “waters of the United States” to isolated waters with no hydrological connection to navigable-in-fact waters); *United States v. Rapanos*, 547 U.S. 715 (2006) (Kennedy, J.) (stating that tributaries which have a substantial nexus to navigable-in-fact waters qualify as waters of the United States under the CWA); *see also* *U.S. v. Gerke Excavating, Inc.*, 464 F.3d 723, 724–25 (7th Cir. 2006) (holding that Justice Kennedy’s concurrence in *Rapanos* is the appropriate test for determining whether a water body is subject to Clean Water Act jurisdiction); *U.S. v. Lucas*, 516 F.3d 316, 325 n.8 (5th Cir. 2008) (same); *Northern California River Watch v. City of Healdsburg*, 496 F.3d 993, 995 (9th Cir. 2007) (same). Whenever a pollution release satisfies the CWA’s statutory triggers, it becomes subject to the CWA’s rigorous pollution control requirements.

B. Climate Change and the Water Quality Standards Program

In the context of climate change, it is unlikely that the CWA could directly limit the releases of greenhouse gases, since these substances are generally emitted into the atmosphere and not discharged directly into water. However, it is possible that climate change will nonetheless affect the regulatory requirements that apply to many point sources — and perhaps nonpoint sources — under the CWA, through the Act’s water quality standards program.

Section 303 requires states to set water quality standards that protect designated uses for water bodies. 33 U.S.C. § 1313(c)(1). Water quality standards establish the water quality goals for a water body. 40 C.F.R. § 131.2. Water quality standards include three elements: (1) one or more designated “uses” of a waterway; (2) numeric and narrative “criteria” specifying the water quality conditions, such as maximum amounts of toxic pollutants, maximum temperature levels, and the like, that are necessary to protect the designated uses; and (3) an antidegradation policy and implementation methods that ensure that “[e]xisting instream water uses and the level of water quality to protect the existing uses [will] be maintained and protected” and that high quality waters will be maintained and protected. 33 U.S.C. §§ 1313(c)(2), 1313(d)(4)(B); 40 C.F.R. Part 131, Subpart B. Each state must develop water quality standards that specify a water body’s designated uses and water quality criteria necessary to protect such uses. States establish water quality standards by “taking into consideration their use and value for public water supplies, propagation of fish and wildlife, recreational purposes, and agricultural, industrial, and other purposes [and] their use and value for navigation.” 33 U.S.C. § 1313(c)(2)(A).

Whenever a state agency develops water quality standards, it must submit the standards to the Environmental Protection Agency (EPA) for review. 33 U.S.C.

§ 1313(c)(2)(A). EPA, in turn, reviews the submitted state standards to determine whether they meet the requirements of the Clean Water Act. 33 U.S.C. § 1313(c)(3). Specifically, EPA evaluates whether the standards include proper designated uses, whether those criteria will protect those uses, and whether the state's antidegradation policy conforms to federal rules. 40 C.F.R. § 131.6. In evaluating the designated uses, EPA ensures that the uses include, at a minimum, propagation of fish, shellfish, and wildlife and human recreation. 40 C.F.R. § 131.2. EPA also ensures that the criteria are "based on sound scientific rationale and [] contain sufficient parameters or constituents to protect the designated use." 40 C.F.R. § 131.11(a)(1). EPA must also determine that the criteria will protect the most sensitive designated uses. *Id.* Thus, water quality standards must include scientifically defensible criteria necessary to protect aquatic life.

In addition, Section 303(d) requires each state to identify waters within its boundaries for which "effluent limitations . . . are not stringent enough to implement any water quality standard applicable to such waters." 33 U.S.C. § 1313(d)(1)(A). A water body failing to meet any numeric criteria or narrative criteria (e.g., "no aesthetically displeasing conditions"), designated uses, or antidegradation requirements shall be included as a water-quality limited segment on the "303(d) List." 40 C.F.R. § 130.7(b)(3).

For waters identified on the 303(d) List, the states must establish a total maximum daily load (TMDL) limit for pollutants "at a level necessary to implement the applicable water quality standards." 33 U.S.C. § 1313(d)(1)(C). "A TMDL defines the specified maximum amount of a pollutant which can be discharged or 'loaded' into the water at issue from all combined sources." *Dioxin/Organochlorine Center v. Clarke*, 57 F.3d 1517, 1520 (9th Cir. 1995). The 303(d) List must include a priority ranking for all listed segments still requiring TMDLs. 40 C.F.R. § 130.7(b)(4).

A TMDL is, in essence, an allocation of the total allowable pollution which all known and unknown sources may release into a water body each day. Each TMDL must allocate the allowable pollution into "load allocations" ("LAs"), which apply to nonpoint sources, and "waste load allocations" ("WLAs"), which apply to point sources. 40 C.F.R. § 130.2(g), (h). All sources are then prohibited from releasing more pollution than authorized under the LAs and WLAs. The TMDLs thus "serve as a link in an implementation chain that includes federally-regulated point source controls, state or local plans for point and nonpoint source pollution reduction, and assessment of the impact of such measures on water quality, all to the end of attaining water quality goals for the nation's waters." *Pronsolino v. Nastri*, 291 F.3d 1123, 1129 (9th Cir. 2002).

The EPA oversees the states' implementation of Section 303(d) and must approve the identified impaired water bodies and TMDLs. 33 U.S.C. § 1313(d)(2). If EPA disapproves either, then EPA shall identify such waters and establish TMDLs as necessary to ensure water quality standards are met. 33 U.S.C. § 1313(d)(2).

Unlike the CWA's NPDES and dredged or fill material permitting programs, the CWA's water quality standards program does not apply only to discharges of pollutants from point sources. Instead, the water quality standards apply to water bodies regardless of the sources of pollution that may affect water quality. If a water body is placed on a state's 303(d) List, moreover, that placement can have

significant consequences for both point and nonpoint sources of pollution. First, the CWA regulations prohibit “new discharges” of pollutants that have a reasonable likelihood of contributing to water quality standards violations from any point sources into water quality limited streams for which the state (or EPA) has not established a TMDL. 40 C.F.R. § 122.4(i). Second, once a TMDL is established, all releases of pollutants must comply with the load allocations and waste load allocations established in the TMDL. Thus, even if a particular source of pollution is not currently restricted under the Clean Water Act, degradation of a water body may ultimately result in future regulation of that source.

Scientists predict that climate change will alter water quality in a number of ways. For example, increased flooding and precipitation in many areas will likely result in increased sedimentation and pollution from runoff, which EPA acknowledges may overload storm water and waste water treatment systems. See Environmental Protection Agency, Climate Change — Health and Environmental Effects, Water Quality, available at <http://www.epa.gov/climatechange/effects/water/quality.html>. Stream temperatures in many areas will also increase, leading, in turn, to a reduction in dissolved oxygen available for aquatic life and direct impacts to temperature-sensitive species. *Id.* If these alterations result in violations of applicable water quality standards, all sources of water pollution will likely face increased restrictions on the types and amounts of pollution they can release into the waters of the United States.

1. *The 303(d) Listing Process*

Federal regulations implementing the CWA require states to submit every two years their 303(d) Lists identifying all “water quality limited” water bodies within the state. 40 C.F.R. § 130.7(d). In developing their 303(d) Lists, states must “assemble and evaluate all existing and readily available water quality-related data and information.” 40 C.F.R. § 130.7(b)(5). In evaluating the data, states must expressly consider information related to any water quality problems reported by other governmental agencies and members of the public. *Id.* at § 130.7(b)(5)(iii). If a state ultimately decides not to use any existing and readily available data and information to develop its 303(d) List, the state must submit to EPA a rationale for excluding such data. 40 C.F.R. § 130.7(b)(6)(iii). The listing process thus provides an avenue for members of the public to get involved in the 303(d) List development.

The Center for Biological Diversity has petitioned California to add waters to the 303(d) List due to carbon dioxide pollution resulting in ocean acidification. As you read the petition, consider what possible actions California could take in response.

**CENTER FOR BIOLOGICAL DIVERSITY, REQUEST TO
ADD CALIFORNIA OCEAN WATERS TO LIST OF
IMPAIRED WATERS DUE TO CARBON DIOXIDE
POLLUTION RESULTING IN OCEAN ACIDIFICATION**

(Feb. 27, 2007)

III. OCEAN ACIDIFICATION BACKGROUND * * *

A. Seawater Chemistry and Carbon Dioxide

The oceans freely exchange carbon dioxide with the atmosphere. The oceans have already taken up about 50% of the carbon dioxide that humans have produced since the industrial revolution, and already this has lowered the average ocean pH by 0.11 units. . . . Over time, the ocean will absorb up to 90% of anthropogenic carbon dioxide released into the atmosphere.

When carbon dioxide is dissolved in seawater it becomes reactive and changes seawater chemistry along with many other physical and biological reactions. When carbon dioxide combines with water, it forms carbonic acid and releases hydrogen ions. These hydrogen ions determine the acidity of the ocean, accounting for the change in pH. The slightly alkaline pH of the ocean is becoming more acidic. The naturally occurring pH values for the ocean were on average 8.16 and as a result of carbon dioxide pollution, the average pH value has dropped to 8.05.

Carbon dioxide pollution results in more severe pH changes than experienced in the past 300 million years. * * *

B. The Adverse Impacts of Carbon Dioxide Pollution on the Marine Environment

Scientists agree that carbon dioxide pollution is causing ocean acidification with adverse impacts on many marine organisms. Available evidence suggests that the consequences of anthropogenic carbon dioxide accumulation have already begun in surface waters.

One of the most alarming effects of ocean acidification is the impact on the availability of carbonate for calcifying organisms such as mollusks, crustaceans, echinoderms, corals, calcareous algae, foraminifera and some phytoplankton. Nearly all marine species that build shells or skeletons from calcium carbonate that have been studied have shown deterioration when exposed to increasing carbon dioxide levels in seawater. Estimates suggest that calcification rates will decrease up to 50% by the end of the century. Snails, sea urchins, starfish, lobster, crabs, oysters, clams, mussels, and scallops all build shells that are vulnerable to ocean acidification. Other marine species may experience physiological effects from acidification including lowered immune response, metabolic decline, and reproductive and respiratory problems.

[The petition then detailed the impacts of ocean acidification on a range of species. These impacts include impaired growth and development of coccolithophorids, foraminifera, and pteropods, the dominant calcifying planktonic organisms. Phytoplankton, such as these, contribute much of the organic material entering the marine food chain and are responsible for about 50% of the earth's primary production. They are food sources for a wide variety of marine organisms, including krill, whales, salmon, and other fish. Larger calcifying animals such as corals, crustaceans, echinoderms, and mollusks are also threatened by ocean

acidification, because, like calcifying plankton, they are experiencing reduced calcification and erosion of their protective shells. For example, at a pH change of 0.3 units, echinoderms are significantly impacted.

Even marine animals that do not calcify are threatened by carbon dioxide increases in their habitat. Changes in the ocean's carbon dioxide concentration result in hypercapnia, an accumulation of carbon dioxide in the tissues and fluids of fish and other marine animals, and acidosis, an increased acidity in the body fluids. These impacts can cause a variety of problems for marine animals including difficulty with acid-base regulation, calcification, growth, respiration, energy turnover, and mode of metabolism. For example, even under a moderate 0.15 pH change, squid have reduced capacity to carry oxygen and higher carbon dioxide pressures are likely to be lethal. Additionally, studies have shown various impacts on fish, oysters, sea urchins, and mollusks due to changes in ocean pH. Impacts on individual species can lead to even greater ecosystem responses that will alter ecosystem productivity, nutrient availability, and carbon cycling.]

IV. CALIFORNIA'S OCEAN WATERS ARE IMPAIRED AND MUST BE ADDED TO THE 303(D) LIST

All segments of California's ocean waters must be included on the State's 303(d) List because current measures are not stringent enough to prevent ocean acidification and achieve water quality standards. 33 U.S.C. § 1313(d). The Clean Water Act requires that California protect the water quality for designated uses of its waters. California's Ocean Plan defines the designated uses of ocean waters:

The beneficial uses of the ocean waters of the State that shall be protected include industrial water supply; water contact and non-contact recreation, including aesthetic enjoyment; navigation; commercial and sport fishing; mariculture; preservation and enhancement of designated Areas of Special Biological Significance (ASBS); rare and endangered species; marine habitat; fish migration; fish spawning and shellfish harvesting.

California Ocean Plan at 3 (2005).

The beneficial uses of California's oceans are threatened by ocean acidification. For example, many marine species are vulnerable to ocean acidification, which can impair the ocean's marine resources and economic activities dependent on these resources such as fishing, mariculture, and shellfish harvesting. Habitat for imperiled species, and their spawning, migration, and forage may be impaired. Even under conservative estimates of future carbon dioxide emissions, scientists predict chemical changes that threaten the ability of marine life to adapt to the acidifying ocean. All these impacts would severely impair Californians' aesthetic and recreational enjoyment of the ocean waters and sea life they contain.

California's ocean waters meet one or more of the 303(d) listing factors enumerated in California's Water Quality Control Policy ("WQCP"). First, California's ocean waters are experiencing a trend of declining water quality for pH. Second, ocean acidification is causing degradation of marine communities. For these reasons, which are described in detail below and supported by the attached scientific evidence, California's ocean should be placed on the 303(d) List as impaired for pH as a result of anthropogenic carbon dioxide emissions.

A. California's Oceans Are on a Trajectory for Declining Water Quality

The Clean Water Act and California's antidegradation policy prohibits any degradation of water bodies that are currently meeting water quality standards. The increasing acidification of the ocean requires that California's ocean waters be added to the 303(d) List.

A water segment shall be placed on the section 303(d) list if the water segment exhibits concentrations of pollutants or water body conditions for any listing factor that shows a trend of declining water quality standards attainment.

WQCP § 3.10 (2004). As this listing criterion fulfills the Clean Water Act's antidegradation requirements, a water body must be listed if it has declining water quality even if water quality objectives are not exceeded. WQCP § 3.10. . . .

At present, California's ocean segments are on a trajectory of declining attainment of water quality standards for pH. California's water quality standard for the ocean states, "the pH shall not be changed at any time more than 0.2 units from that which occurs naturally." California Ocean Plan 6 (2005).

Applying the existing Ocean Plan standard for pH, all California ocean waters must be included on the 303(d) List because they are experiencing degradation. As described above, dissolved carbon dioxide lowers the pH of seawater and acidifies the ocean. Surface ocean pH has already declined by 0.11 units on average from preindustrial values. The naturally occurring pH values for the ocean were on average 8.16 and as a result of carbon dioxide pollution, the average pH value has dropped to 8.05. This is a significant change in water quality since each step is a tenfold change in acidity. * * *

The ongoing acidification of the ocean is the most severe change in ocean pH in several million years. These changes are occurring at about 100 times the rate of changes seen naturally in geological history. * * *

Meanwhile, human activities continue to release carbon dioxide, and the ocean is continuing to absorb such pollution. With the oceans absorbing about 22 million [tons] of carbon dioxide each day, seawater pH will continue to decrease. Assuming current trends of greenhouse gas emissions, the global average pH of seawater will drop another 0.3–0.4 units. Having already absorbed half of anthropogenic carbon dioxide, scientists predict that the oceans will absorb up to 90%. Unabated, carbon dioxide pollution will degrade seawater quality beyond California's water quality standards. By the end of this century, absent significant reductions in carbon dioxide emissions, this will result in a pH change up to 0.5 units.

California is among the largest producers of carbon dioxide pollution. Contributing about 492 million metric tons of greenhouse gases each year, California is the nation's second largest emitter of greenhouse gases and the world's 12th largest contributor. Carbon dioxide accounts for 84% of those emissions, much of which is quickly absorbed into the surface layers of the ocean. California's population is expected to increase from 35 million today to 55 million by 2050. Absent significant per-capita reductions in current carbon dioxide emission rates, California's emissions are likely to increase.

Increasing carbon dioxide in the atmosphere will lead to further ocean acidification.

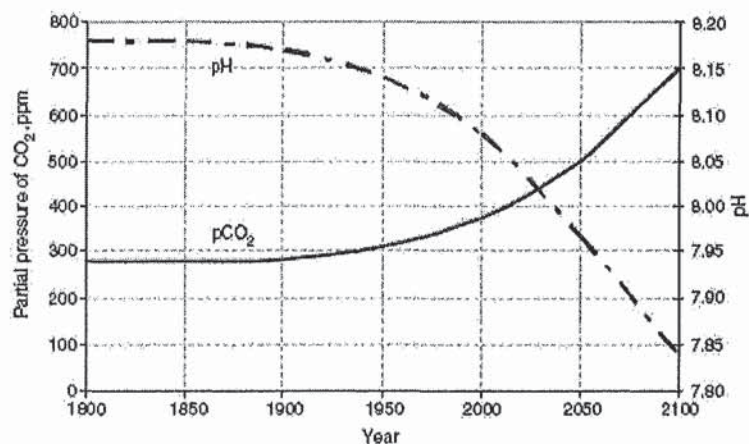


Figure 8.1 The past and projected change in atmospheric CO₂ and seawater pH assuming anthropogenic emissions are maintained at current predictions (redrawn from Zeebe and Wolf-Gladrow 2001).

Source: Turley 2006

As described above, and documented in the scientific literature submitted with this request, carbon dioxide absorption into the ocean is causing California's ocean waters to have a lower pH, increased dissolved carbon dioxide, lower concentration of carbonate ions, and increased bicarbonate ions. The result is that California's ocean waters have already been degraded by carbon dioxide pollution. California's ocean waters are on a trajectory toward nonattainment of water quality standards and therefore should be added to the 303(d) List.

B. Ocean Acidification Is Impairing Marine Communities

California's ocean waters should also be placed on the 303(d) List because they exceed the narrative water quality criteria for biological characteristics described in California's Ocean Plan. The Ocean Plan provides that "[m]arine communities, including vertebrate, invertebrate, and plant species, shall not be degraded."

California's Water Quality Control Policy ("WQCP") explicitly states that a water segment that "exhibits adverse biological response" such as "reduction in growth, reduction in reproductive capacity, abnormal development, histopathological abnormalities, and other adverse conditions" should be placed on the list. WQCP § 3.8. A segment should also be listed "if the water segment exhibits significant degradation in biological populations and/or communities" as evidenced by declining species diversity or individuals in a species. WQCP § 3.9.

As described above, the impacts of ocean acidification on marine organisms, and ultimately, marine communities are significant, diverse, and will greatly increase in severity over time. * * *

Ocean acidification is adversely affecting calcifying planktonic organisms such as coccolithophorids, foraminifera, and pteropods, larger calcifying organisms such as crustaceans, echinoderms, corals, and mollusks, non-calcifying organisms such as fish and squid, and such adverse affects will reverberate through the marine ecosystem to marine mammals, seabirds and ultimately human communities reliant upon ocean resources. In short, ocean acidification caused by anthropogenic carbon dioxide is causing degradation of California's marine communities in breach of the

water quality standards. As such, California's ocean waters should be added to the 303(d) List as impaired for pH from absorption of anthropogenic atmospheric carbon dioxide.

QUESTIONS AND DISCUSSION

1. The Center for Biological Diversity petition seeks to place all of California's ocean waters on California's 303(d) List, because (a) the water quality in the oceans is declining, in violation of California's antidegradation policy, and (b) the acidic ocean waters do not adequately protect California's designated uses, in violation of California's narrative water quality criteria. Do you think the evidence presented in the petition justifies the action requested by the Center for Biological Diversity? Why or why not?

2. Is California required to consider the Center for Biological Diversity's petition? In *Sierra Club, Inc. v. Leavitt*, the Eleventh Circuit found that EPA had violated the Clean Water Act when it approved Florida's 303(d) List, because Florida had excluded all data that was more than 7.5 years old when it developed the list. 488 F.3d 904, 913–14 (11th Cir. 2006). Florida had chosen to exclude all older data from consideration on the basis that older data can be less reliable in assessing current conditions. *Id.* at 914. The court, however, held that Florida (and, by extension, EPA) must at least review all relevant data and then provide for specific justifications if the agencies choose to not use such data in making the 303(d) List. *Id.* What does this case suggest about how California may need to respond to the petition?

3. The Center for Biological Diversity's petition identifies airborne emissions of carbon dioxide as the primary cause of ocean acidification. While the petition also attempts to link the increased acidification to California's own carbon dioxide emissions, it is likely that global carbon dioxide emissions are responsible for increased acidification of the world's oceans. Is the 303(d) List the appropriate tool to use to address global pollution? Do you think Congress intended the Clean Water Act to control *air* pollution?

The answers to these questions may depend upon the particular program of the Clean Water Act. As noted above (and discussed in greater detail below), the water quality standards program is focused on the quality of water bodies generally, regardless of the source of any pollution that may impact water quality. Thus, an assessment of whether a water body is water quality limited (and thus placed on a state's 303(d) List) should focus on the designated uses in a given waterway, the criteria established to protect those uses, and the levels of pollution found in the water body. For all of these factors, the source of the pollution should be irrelevant. Indeed, many water bodies in the United States are listed on states' 303(d) Lists due to mercury pollution, even though, in many states, the primary sources of aquatic mercury pollution are air emissions of mercury from coal-fired power plants and industrial facilities located within and outside the United States.

As for controlling air emissions in order to protect water quality, various possible approaches exist. States are developing TMDLs for mercury which establish load allocations for anthropogenic sources of airborne mercury pollution. *See, e.g.*, NORTHEAST REGIONAL MERCURY TOTAL MAXIMUM DAILY LOAD 30 (Oct. 24, 2007); OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY, WILLAMETTE BASIN TMDL, CHAPTER 3: WILLAMETTE BASIN MERCURY TMDL 3-36 to 3-37 (Sept. 2006). These TMDLs thus treat airborne mercury emitters as nonpoint sources of mercury pollution. As discussed in the *Pronsolino* case, below, states that attempt to regulate nonpoint

pollution through TMDLs will likely survive challenges to this exercise of regulatory power.

Outside of the water quality standards and TMDL context, however, it is unclear whether courts will accept regulation of airborne pollution through the Clean Water Act's point source controls. *See* *Chemical Weapons Working Group, Inc. v. U.S. Dept. of Defense*, 111 F.3d 1485 (10th Cir. 1997); *League of Wilderness Defenders v. Forsgren*, 309 F.3d 1181 (9th Cir. 2002). In *Chemical Weapons Working Group*, the Tenth Circuit rejected the plaintiffs' arguments that the Clean Water Act applied to emissions from a chemical weapons incinerator that would enter a nearby waterway, and concluded that Congress intended for the Clean Air Act to regulate such emissions. In that case, the court was particularly reluctant to allow the Clean Water Act to apply, because the Clean Water Act contains an absolute ban on discharges of chemical or biological warfare agents. 111 F.3d at 1490. Thus, regulation under the Clean Water Act would have likely resulted in closure of the facility, even though Congress had approved and funded the facility. *Id.* The court was unwilling to interpret the law in a way that would yield such a result. In *League of Wilderness Defenders*, however, the Ninth Circuit had no difficulty concluding that aerial spraying of pesticides over waters within national forests is a point source discharge requiring a NPDES permit. 309 F.3d at 1184–85 (“an airplane fitted with tanks and a mechanical spraying apparatus is a ‘discrete conveyance’”). The cases, however, are distinguishable in at least one important way: in *Chemical Weapons Working Group*, the facility had received and was operating under a Clean Air Act permit, 111 F.3d at 1490–91; in *League of Wilderness Defenders*, there was never any argument that the Clean Air Act could regulate the pesticide releases. *See* 309 F.3d at 1184–90. Thus, the scope of Clean Water Act regulation may depend, at least in part, on whether a facility is already subject to Clean Air Act requirements.

4. Several states already include water bodies on their 303(d) List for exceeding applicable water quality standards for temperature. *See* EPA, Map, *Idaho, Oregon, & Washington CWA 303(d) Listings in ESA-Listed Fish Habitat* (June 18, 2004). Many species, such as salmon and steelhead, require cold stream temperatures for spawning, rearing, and migration, and warm waters impair the species' ability to survive. In fact, multiple populations of salmon have been listed as endangered or threatened species under the Endangered Species Act due in part to elevated stream temperatures. Scientists predict that climate change will further alter water quality of streams by increasing average stream temperatures. What additional protections do you think the Clean Water Act's 303(d) listing process could provide species that are already protected under the Endangered Species Act? For a discussion of the interplay between the Clean Water Act and the ESA, *see* Craig N. Johnston, *Salmon and Water Temperature: Taking Species Seriously in Establishing Water Quality Standards*, 33 ENVTL. L. 151 (2003).

2. *The Consequences of a 303(d) Listing Decision*

Once a water body is on a state's 303(d) List, important regulatory consequences result. First, federal regulations prohibit the introduction of new discharges of pollutants that may cause or contribute to violations of water quality standards into water quality limited streams for which a TMDL has not been developed. 40 C.F.R. § 122.4(i). Second, once a TMDL is developed, sources must adhere to the established load allocations and waste load allocations. As you read the following cases, consider the implications for both point and nonpoint sources if climate change alters water quality in the way most scientists predict.

**a. *Implications for Point Sources: The Prohibition
against New Discharges into Water Quality
Limited Streams***

**FRIENDS OF PINTO CREEK v. UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY**

504 F.3d 1007 (9th Cir. 2007)

HUG, CIRCUIT JUDGE: * * *

In this case, we determine whether the Environmental Protection Agency (“EPA”) properly issued a National Pollution Discharge Elimination System (“NPDES”) permit under the Clean Water Act to Carlota Copper Company (“Carlota”). The permit allows mining-related discharges of copper into Arizona’s Pinto Creek, a waterbody already in excess of water quality standards for copper. . . .

I. FACTUAL BACKGROUND

. . . Due to excessive copper contamination from historical mining activities in the region, Pinto Creek is included on Arizona’s list of impaired waters under § 303(d) of the Clean Water Act, 33 U.S.C. § 1313(d), as a water quality limited stream due to non-attainment of water quality standards for dissolved copper.

Carlota proposed to construct and operate an open-pit copper mine and processing facility approximately six miles west of Miami, Arizona, covering over 3000 acres while extracting about 100 million tons of ore. Part of the operation plan includes constructing diversion channels for Pinto Creek to route the stream around the mine, as well as groundwater cut-off walls to block the flow of groundwater into the mine.

. . . Because the proposed action would involve the discharge of pollutants into Pinto Creek, Carlota applied to the EPA for an NPDES permit under § 402 of the Clean Water Act, 33 U.S.C. § 1342, in 1996. The EPA ultimately issued the permit, and the Environmental Appeals Board (“Appeals Board”), the internal appellate board of the EPA, denied review.

* * *

V. ANALYSIS

* * *

Under § 303 of the Clean Water Act, 33 U.S.C. § 1313, the states are required to set water quality standards for all waters within their boundaries, regardless of the sources of the pollution entering the waters. Pursuant to § 303(d)(1), 33 U.S.C. § 1313(d)(1), each state is required to identify those waters that do not meet the water quality standard which is frequently called the “§ 303(d)(1) list.” For impaired waters identified in the § 303(d)(1) list, the states must establish a TMDL for pollutants identified by the EPA. A TMDL specifies the maximum amount of pollutant that can be discharged or loaded into the waters from all combined sources, so as to comply with the water quality standards.

Each state is required to submit its § 303(d)(1) list and its TMDL to the EPA for its approval or disapproval. If the EPA disapproves either of those documents, the EPA is responsible for preparing that document. The state then incorporates its

§ 303(d)(1) list and its TMDL or the EPA's approved document into its continuing planning process as required by § 303(e), 33 U.S.C. § 1313(e).

In this case, the state had prepared the § 303(d)(1) list, but it had not prepared a TMDL. Therefore, in response to the Petitioners' objection, the EPA prepared the TMDL utilized in its awarding of the permit.

The Petitioners contend that as a "new discharger" Carlota's discharge of dissolved copper into a waterway that is already impaired by an excess of the copper pollutant violates the intent and purpose of the Clean Water Act. Under the NPDES permitting program, 40 C.F.R. § 122.4(i) addresses the situation where a new source seeks to permit a discharge of pollutants into a stream already exceeding its water quality standards for that pollutant. Section 122.4 states in relevant part:

No permit may be issued:

. . . .

(i) To a new source or a new discharger if the discharge from its construction or operation will cause or contribute to the violation of water quality standards. The owner or operator of a new source or new discharger proposing to discharge into a water segment which does not meet applicable water quality standards or is not expected to meet those standards . . . and for which the State or interstate agency has performed a pollutants load allocation for the pollutant to be discharged, must demonstrate, before the close of the public comment period, that:

(1) There are sufficient remaining pollutant load allocations to allow for the discharge; and

(2) The existing dischargers into that segment are subject to compliance schedules designed to bring the segment into compliance with applicable water quality standards.

40 C.F.R. § 122.4 (2000).

The plain language of the first sentence of the regulation is very clear that no permit may be issued to a new discharger if the discharge will contribute to the violation of water quality standards. This corresponds to the stated objectives of the Clean Water Act "to restore and maintain the chemical, physical, and biological integrity of the nation's waters." 33 U.S.C. § 1251(a) (1987). And that "it is the national policy that the discharge of toxic pollutants in toxic amounts be prohibited." 33 U.S.C. § 1251(a)(3) (1987).

The EPA contends that the partial remediation of the discharge from the Gibson Mine will offset the pollution. However, there is nothing in the Clean Water Act or the regulation that provides an exception for an offset when the waters remain impaired and the new source is discharging pollution into that impaired water.

The regulation does provide for an exception where a TMDL has been performed and the owner or operator demonstrates that *before the close of the comment period* two conditions are met, which will assure that the impaired waters will be brought into compliance with the applicable water quality standards. The plain language of this exception to the prohibited discharge by a new source provides that the exception does not apply unless the new source can demonstrate that, under the TMDL, the plan is designed to bring the waters into compliance with applicable water quality standards.

The EPA argues that under the requirements of clause (1), there are sufficient remaining load allocations to allow for the discharge because the TMDL provides a

method by which the allocations could be established to allow for the discharge. There is no contention, however, that these load allocations represent the amount of pollution that is currently discharged from the point sources and nonpoint sources, and there is no indication of any plan that will effectuate these load allocations so as to bring Pinto Creek within the water quality standards. The TMDL merely provides for the manner in which Pinto Creek *could* meet the water quality standards if all of the load allocations in the TMDL were met, not that there are sufficient remaining pollutant load allocations under existing circumstances.

With regard to the requirements of clause (2), the EPA argues that the requirement of “compliance schedules” pertains only to point sources for which there is a permit. This does not correspond to the plain language of clause (2), which provides “the existing discharges into that segment [of Pinto Creek] are subject to compliance schedules designed to bring the segment into compliance with applicable water quality standards.” 40 C.F.R. § 122.4(i)(2) (2000).

We examine that language utilizing the definitions provided in the regulation. The term “discharge” is defined to mean “the discharge of a pollutant.” 40 C.F.R. § 122.2 (2000). The term “discharge of a pollutant,” is defined as any addition of any “pollutant” or combination of pollutants to “waters of the United States” from “*any point source*.” *Id.* at § 122.2(a) (emphasis added). Thus, under the plain language of the regulation, compliance schedules are not confined only to “permitted” point source discharges, but are applicable to “any” point source.

The EPA contends that this would amount to a complete ban of the discharge of pollution to impaired waters. This is based on its misreading of the plain language of the regulation to state that the remediation has to be *completed* before Carlota’s discharge. The plain language of clause (2) of the regulation, instead, provides that existing discharges into that segment (of the waters) are “subject to *compliance schedules* designed to bring the segment into compliance with applicable water quality standards.” 40 C.F.R. § 122.4(i)(2) (2000) (emphasis added). This is not a complete ban but a requirement of schedules to meet the objective of the Clean Water Act.

Here the existing discharges from point sources are not subject to compliance schedules designed to bring Pinto Creek into compliance with water quality standards. Thus, Carlota has not demonstrated that clause (2) of 40 C.F.R. § 122.4(i) has been met. This is the regulation upon which Carlota and the EPA rely for issuance of the permit.

Initially, Carlota and the EPA contended that the first and second sentences of § 122.4(i) could be construed to apply independently, thus not requiring compliance with clauses (1) and (2) when an offset would result in a substantial net reduction of pollution to the impaired waters. The Petitioners, on the other hand, maintained that the two sentences must be read together, not independently. However, the EPA subsequently asked the Appeals Board to assume, for purposes of this decision, that clauses (1) and (2) do apply. *See In re Carlota Copper Co.*, 11 E.A.D. 692, 766 (EAB 2004). Thus, we are concerned in this case with whether the EPA required Carlota to fulfill all of the requirements of § 122.4(i), including clauses (1) and (2), in order to issue a permit to it as a new discharger.

The Respondents and Carlota rely on *Arkansas v. Oklahoma*, 503 U.S. 91 (1992) in support of their contentions. That case involved the issuance of a permit for a city in Arkansas to discharge effluent into a stream in Arkansas that entered a river that eventually flowed into Oklahoma. Oklahoma challenged the permit before the EPA, alleging that the discharge violated Oklahoma Water Quality Standards. In that case, the EPA found that the discharge would not lead to a “detectable change in water quality,” which the Supreme Court held was supported by substantial

evidence. *Arkansas*, 503 U.S. at 112. In the opinion, the Court stated that “the parties have pointed to nothing that mandates a complete ban on discharges into a waterway that is in violation of those standards. The statute does, however, contain provisions designed to remedy existing water quality violations and to allocate the burden of reducing undesirable discharges between existing sources and new sources. *See, e.g.*, § 1313(d).” *Id.* at 108. Section 1313(d) of the Clean Water Act, referred to by the Court, is the one that provides for the establishment of water quality standards and TMDLs.

The Supreme Court in *Arkansas v. Oklahoma* also referred to § 1288(b)(2), which provides for the development of area-wide programs to eliminate existing pollution in the context of area-wide waste treatment management. *Id.* That section provides details required of any plan to eliminate the pollution, including schedules, time lines, identification of agencies, and identification of measures necessary to carry out the plan.

The Appeals Board stated that prior Agency pronouncements “confirm our position that, rather than completely banning new source discharges, § 122.4(i) provides new sources with the opportunity to obtain a permit if the requirements specified in that section are met.” *In re Carlota Copper Co.*, 11 E.A.D. 692, 765 (EAB 2004). The prior Agency position quoted states:

A new source or new discharger may, however, obtain a permit for discharge into a water segment which does not meet applicable water quality standards by submitting information demonstrating that there is sufficient loading capacity remaining in waste load allocations (WLAs) for the stream segment to accommodate the new discharge and that existing dischargers to that segment are subject to *compliance schedules* designed to bring the segment into compliance with the applicable water quality standards.

Id. (emphasis added). The language quoted by the Appeals Board from the prior agency action requires compliance schedules designed to bring the water segment into compliance with the applicable water quality standards.

In Carlota’s case, there are no plans or compliance schedules to bring the Pinto Creek segment “into compliance with applicable water quality standards,” as required by § 122.4(i)(2), which Carlota and the EPA both acknowledge is the applicable section with which Carlota must comply. The error of both the EPA and Carlota is that the objective of that section is not simply to show a lessening of pollution, but to show how the water quality standard will be met if Carlota is allowed to discharge pollutants into the impaired waters.

The EPA has the responsibility to regulate discharges from point sources and the states have the responsibility to limit pollution coming into the waters from non-point sources. If point sources, other than the permitted point source, are necessary to be scheduled in order to achieve the water quality standard, then the EPA must locate any such point sources and establish compliance schedules to meet the water quality standard before issuing a permit. If there are not adequate point sources to do so, then a permit cannot be issued unless the state or Carlota agrees to establish a schedule to limit pollution from a nonpoint source or sources sufficient to achieve water quality standards.

* * *

In this case, the Petitioners do not argue for an absolute ban on discharges into a waterway that is in violation of the water quality standards. Rather, the Petitioners point to the § 122.4(i) exception by which a new discharger can comply with the Clean Water Act requirements. Those requirements simply were not met.

Thus, no conflict exists with the Supreme Court's opinion in *Arkansas v. Oklahoma*.

QUESTIONS AND DISCUSSION

1. The federal regulation at issue in *Friends of Pinto Creek* prohibits new discharges into water quality-limited streams unless a TMDL has been developed and 1) there are sufficient load allocations in the TMDL to accommodate the new pollution source and 2) all other existing discharges are subject to a schedule for compliance with applicable water quality standards. 40 C.F.R. § 122.44(i). How did EPA interpret this regulation before the Ninth Circuit Court of Appeals? Why did the court reject EPA's arguments? What implications could such a decision have in the climate change context? For example, if California were to grant the Center for Biological Diversity's petition and place all of its ocean waters on the 303(d) List, what additional steps would California need to take before issuing permits to new dischargers?

2. In *Friends of Pinto Creek*, the water body at issue had become polluted as a result of historic mining activities caused by other entities. If climate change has the impacts on stream quality that many predict, it is likely that many water bodies will be listed as impaired and subject to TMDLs, in which case many other companies will bear the burden of restoring water quality, even though they may not be the primary cause of water quality impairment. Consider, for example, the likely increases in stream temperatures that will result from climate change. Should industries which discharge heated water bear the burden of cooling their discharges because climate change has caused the streams to warm?

3. In *Friends of Pinto Creek*, EPA initially proposed to issue a permit to Carlota Copper Company, even though the company proposed to discharge copper into a stream listed as impaired due to excessive copper pollution and even though the state of Arizona had not yet developed a TMDL for the creek. When the environmental organizations opposed the permit, EPA then developed a TMDL. Could EPA have justified issuing the permit even absent a TMDL? Reread 40 C.F.R. § 122.4(i) and specifically consider the language regarding waters "for which the State or interstate agency has performed a pollutants load allocation." Does this language mean that EPA or the state must already have completed a TMDL before new discharges can receive permits? At least one court has determined that it does. *Friends of the Wild Swan v. EPA*, 130 F. Supp. 2d 1199 (D. Mont. 2000) (enjoining issuance of any NPDES permits to new sources until Montana had completed TMDLs for more than 900 streams included on Montana's 303(d) List), *aff'd in relevant part*, 74 Fed. Appx. 718 (9th Cir. 2003). Consider also the requirement that there be "sufficient remaining pollutant load allocations to allow for the [new or increased] discharge." 40 C.F.R. 122.4(i)(1). If states begin listing water bodies due to climate change-related impacts, what type of burden will the development of TMDLs place on state agencies and the EPA? How feasible will it be for agencies to develop TMDLs with remaining pollutant load allocations, when much of the carbon dioxide pollution is coming from other countries, many of which are growing at unexpected rates?

4. In *Friends of Pinto Creek*, the Ninth Circuit rejected EPA's argument that Carlota could avoid the regulatory restrictions for "new discharges" by offsetting its own pollution through pollution reductions at another mine. The Minnesota Supreme Court, however, reached a different conclusion. See *In the Matter of the Cities of Annandale and Maple Lake NPDES/SDS Permit Issuance for the Discharge of Treated Wastewater*, 731 N.W.2d 502 (Minn. 2007) ("*Annandale*"). In *Annandale*, the state issued a permit for a new facility to discharge phosphorus into

a water body listed under the Minnesota 303(d) List due to insufficient oxygen. Excess phosphorus in water bodies results in oxygen depletion. The Minnesota Supreme Court upheld the permit by deferring to a state agency's conclusion that the new discharge would not result in a violation of water quality standards because an improvement to a different wastewater treatment facility would remove much more phosphorus than the new facility would add. Why did EPA's similar argument in *Pinto Creek* fail? In the climate change context, which court's approach do you think is a better one, and why?

5. While the CWA directs states to develop TMDLs for impaired waters, the CWA does not impose rigid deadlines on the development of TMDLs; so long as the state developed its first TMDL by June 26, 1979, the state need only develop other TMDLs "from time to time" thereafter. 33 U.S.C. § 1313(d)(2). This lack of enforceable deadlines has led to a significant backlog in the development of TMDLs. See OLIVER A. HOUCK, *THE CLEAN WATER ACT TMDL PROGRAM: LAW, POLICY, AND IMPLEMENTATION* 51–53 (2d ed. 2002). Do you think the *Friends of Pinto Creek* decision will spur states to develop TMDLs more quickly?

6. What consequences would result if California grants the Center for Biological Diversity's petition to list all ocean waters in California under the 303(d) List for impairment due to increased acidity? Does this mean that no new facilities could be built on the California coast until California develops a TMDL and establishes schedules of compliance for all discharges of acidic water? Is that a fair burden for the state to bear? Could California reject the Center's petition based on such concerns?

7. Many states have antidegradation policies that prohibit both new and *increased* discharges of pollutants into 303(d)-listed waters until the states have developed TMDLs for those streams. See *Hells Canyon Preservation Council v. Haines*, 2006 U.S. Dist LEXIS 54884 (D. Or. Aug. 4, 2006) (finding that the United States Forest Service violated Oregon's antidegradation rules by authorizing new and increased discharges into a water quality-limited stream). The court in *Friends of the Wild Swan* similarly prohibited the issuance of NPDES permits to both new and increased discharges until Montana had completed the required TMDLs. 74 Fed. Appx. 718, 723–24 (9th Cir. 2003).

b. *Implications for All Sources: Compliance with TMDLs*

PRONSOLINO v. NASTRI

291 F.3d 1123 (9th Cir. 2002)

BERZON, CIRCUIT JUDGE. * * *

II. FACTUAL AND PROCEDURAL BACKGROUND

A. The Garcia River TMDL

In 1992, California submitted to the EPA a list of waters pursuant to § 303(d)(1)(A). Pursuant to § 303(d)(2), the EPA disapproved California's 1992 list because it omitted seventeen water segments that did not meet the water quality standards set by California for those segments. Sixteen of the seventeen water segments, including the Garcia River, were impaired only by nonpoint sources of

pollution. After California rejected an opportunity to amend its § 303(d)(1) list to include the seventeen sub-standard segments, the EPA, again acting pursuant to § 303(d)(2), established a new § 303(d)(1) list for California, including those segments on it. California retained the seventeen segments on its 1994, 1996, and 1998 § 303(d)(1) lists.

California did not, however, establish TMDLs for the segments added by the EPA. Environmental and fishermen's groups sued the EPA in 1995 to require the EPA to establish TMDLs for the seventeen segments, and in a March 1997 consent decree the EPA agreed to do so. According to the terms of the consent decree, the EPA set March 18, 1998, as the deadline for the establishment of a TMDL for the Garcia River. When California missed the deadline despite having initiated public comment on a draft TMDL and having prepared a draft implementation plan, the EPA established a TMDL for the Garcia River. The EPA's TMDL differed only slightly from the state's draft TMDL.

The Garcia River TMDL for sediment is 552 tons per square mile per year, a sixty percent reduction from historical loadings. The TMDL allocates portions of the total yearly load among the following categories of nonpoint source pollution: a) "mass wasting" associated with roads; b) "mass wasting" associated with timber-harvesting; c) erosion related to road surfaces; and d) erosion related to road and skid trail crossings.

B. The Appellants

In 1960, appellants Betty and Guido Pronsolino purchased approximately 800 acres of heavily logged timber land in the Garcia River watershed. In 1998, after re-growth of the forest, the Pronsolinos applied for a harvesting permit from the California Department of Forestry ("Forestry").

In order to comply with the Garcia River TMDL, Forestry and/or the state's Regional Water Quality Control Board required, among other things, that the Pronsolinos' harvesting permit provide for mitigation of 90% of controllable road-related sediment run-off and contain prohibitions on removing certain trees and on harvesting from mid-October until May 1. The Pronsolinos' forester estimates that the large tree restriction will cost the Pronsolinos \$750,000.

Larry Mailliard, a member of the Mendocino County Farm Bureau, submitted a draft harvesting permit on February 4, 1998, for a portion of his property in the Garcia River watershed. Forestry granted a final version of the permit after incorporation of a 60.3% reduction of sediment loading, a requirement included to comply with the Garcia River TMDL. Mr. Mailliard's forester estimates that the additional restrictions imposed to comply with the Garcia River TMDL will cost Mr. Mailliard \$10,602,000.

* * *

III. ANALYSIS

B. Plain Meaning and Structural Issues

1. *The Competing Interpretations*

Section 303(d)(1)(A) requires listing and calculation of TMDLs for "those waters within [the state's] boundaries for which the effluent limitations required by section

[301(b)(1)(A)] and section [301(b)(1)(B)] of this title *are not stringent enough to implement any water quality standard* applicable to such waters.” § 303(d) (emphasis added). The precise statutory question before us is whether, as the Pronsolinos maintain, the term “not stringent enough to implement . . . water quality standard[s]” as used in § 303(d)(1)(A) must be interpreted to mean *both* that application of effluent limitations will not achieve water quality standards *and* that the waters at issue are subject to effluent limitations. As only waters with point source pollution are subject to effluent limitations, such an interpretation would exclude from the § 303(d)(1) listing and TMDL requirements waters impaired only by nonpoint sources of pollution.

The EPA, as noted, interprets “not stringent enough to implement . . . water quality standard[s]” to mean “not adequate” or “not sufficient . . . to implement any water quality standard,” and does not read the statute as implicitly containing a limitation to waters initially covered by effluent limitations. According to the EPA, if the use of effluent limitations will not implement applicable water quality standards, the water falls within § 303(d)(1)(A) regardless of whether it is point or nonpoint sources, or a combination of the two, that continue to pollute the water.

2. *The Language and Structure of § 303(d)*

Whether or not the appellants’ suggested interpretation is entirely implausible, it is at least considerably weaker than the EPA’s competing construction. The Pronsolinos’ version necessarily relies upon: (1) understanding “stringent enough” to mean “strict enough” rather than “thorough going enough” or “adequate” or “sufficient”; and (2) reading the phrase “not stringent enough” in isolation, rather than with reference to the stated goal of implementing “any water quality standard applicable to such waters.” Where the answer to the question “not stringent enough for what?” is “to implement any [applicable] water quality standard,” the meaning of “stringent” should be determined by looking forward to the broad goal to be attained, not backwards at the inadequate effluent limitations. One might comment, for example, about a teacher that her standards requiring good spelling were not stringent enough to assure good writing, as her students still used bad grammar and poor logic. Based on the language of the contested phrase alone, then, the more sensible conclusion is that the § 303(d)(1) list must contain any waters for which the particular effluent limitations will not be adequate to attain the statute’s water quality goals.

Placing the phrase in its statutory context supports this conclusion. Section 303(d) begins with the requirement that each state “identify those waters within its boundaries. . . .” § 303(d)(1)(A). So the statute’s starting point for the listing project is a compilation of each and every navigable water within the state. Then, only those waters that will attain water quality standards after application of the new point source technology are excluded from the § 303(d)(1) list, leaving all those waters for which that technology will not “implement any water quality standard applicable to such waters.” § 303(d)(1)(A); *see American Wildlands v. Browner*, 260 F.3d 1192, 1194 (10th Cir.2001) (“[E]ach state is required to identify all of the waters within its borders not meeting water quality standards and establish [TMDLs] for those waters.”). The alternative construction, in contrast, would begin with a subset of all the state’s waterways, those that have point sources subject to effluent limitations, and would result in a list containing only a subset of that subset — those waters as to which the applicable effluent limitations are not adequate to attain water quality standards.

The Pronsolinos’ contention to the contrary notwithstanding, no such odd reading of the statute is necessary in order to give meaning to the phrase “for which the effluent limitations required by section [301(b)(1)(A)] and section

[301(b)(1)(B)] . . . are not stringent enough.” The EPA interprets § 303(d)(1)(A) to require the identification of any waters not meeting water quality standards only if specified effluent limitations would not achieve those standards. 40 C.F.R. § 130.2(j). If the pertinent effluent limitations would, if implemented, achieve the water quality standards but are not in place yet, there need be no listing and no TMDL calculation. *Id.*

So construed, the meaning of the statute is different than it would be were the language recast to state only that “Each State shall identify those waters within its boundaries . . . [not meeting] any water quality standard applicable to such waters.” Under the EPA’s construction, the reference to effluent limitations reflects Congress’ intent that the EPA focus initially on implementing effluent limitations and only later avert its attention to water quality standards. * * *

Nothing in § 303(d)(1)(A) distinguishes the treatment of point sources and nonpoint sources as such; the only reference is to the “effluent limitations required by” § 301(b)(1). So if the effluent limitations required by § 301(b)(1) are “as a matter of law” “not stringent enough” to achieve the applicable water quality standards for waters impaired by point sources not subject to those requirements, then they are also “not stringent enough” to achieve applicable water quality standards for other waters not subject to those requirements, in this instance because they are impacted only by nonpoint sources. * * *

3. *The Statutory Scheme as a Whole*

The Pronsolinos’ objection to this view of § 303(d), . . . is, in essence, that the CWA as a whole distinguishes between the regulatory schemes applicable to point and non-point sources, so we must assume such a distinction in applying §§ 303(d)(1)(A) and (C). We would hesitate in any case to read into a discrete statutory provision something that is not there because it is contained elsewhere in the statute. But here, the premise is wrong: There is no such general division throughout the CWA.

Point sources are treated differently from nonpoint sources for many purposes under the statute, but not all. In particular, there is no such distinction with regard to the basic purpose for which the § 303(d) list and TMDLs are compiled, the eventual attainment of state-defined water quality standards. Water quality standards reflect a state’s designated *uses* for a water body and do not depend in any way upon the source of pollution. *See* § 303(a)–(c).

Nor is there any other basis for inferring from the structure of the Act an implicit limitation in §§ 303(d)(1)(A) and (C). The statutory subsection requiring water quality segment identification and TMDLs, § 303(d), appears in the section entitled “Water Quality Standards and Implementation Plans,” not in the immediately preceding section, CWA § 302, 33 U.S.C. § 1312, entitled “Water Quality Related Effluent Limitations.”

Additionally, § 303(d) follows the subsections setting forth the requirements for water quality standards, § 303(a)–(c) — which, as noted above, apply without regard to the source of pollution — and precedes the “continuing planning process” subsection, § 303(e), which applies broadly as well. Thus, § 303(d) is structurally part of a set of provisions governing an interrelated goal-setting, information-gathering, and planning process that, unlike many other aspects of the CWA, applies without regard to the source of pollution.

True, there are, as the Pronsolinos point out, two sections of the statute as amended, § 208 and § 319, that set requirements exclusively for nonpoint sources of pollution. But the structural inference we are asked to draw from those specialized

sections — that no *other* provisions of the Act set requirements for waters polluted by nonpoint sources — simply does not follow. Absent some irreconcilable contradiction between the requirements contained in §§ 208 and 319, on the one hand, and the listing and TMDL requirements of § 303(d), on the other, both apply.

There is no such contradiction. * * * As various sections of the Act encourage different, and complementary, state schemes for cleaning up nonpoint source pollution in the nation's waterways, there is no basis for reading any of those sections — including § 303(d) — out of the statute.

There is one final aspect of the Act's structure that bears consideration because it supports the EPA's interpretation of § 303(d): The list required by § 303(d)(1)(A) requires that waters be listed if they are impaired by a combination of point sources and nonpoint sources; the language admits of no other reading. Section 303(d)(1)(C), in turn, directs that TMDLs "shall be established at a level necessary to implement the applicable water quality standards. . . ." *Id.* (emphasis added). So, at least in blended waters, TMDLs must be calculated with regard to nonpoint sources of pollution; otherwise, it would be impossible "to implement the applicable water quality standards," which do not differentiate sources of pollution.

QUESTIONS AND DISCUSSION

1. In *Pronsolino*, the Ninth Circuit upheld the application of restrictions upon nonpoint sources necessary to comply with a TMDL established for sedimentation. What implications could this decision have on nonpoint source activities that contribute to warmer surface waters? Logging, agriculture, and grazing, for example, all result in stream alterations and a loss of stream shading, which, in turn, cause streams and rivers to become hotter. As climate change further exacerbates problems associated with warm water temperatures, could loggers, ranchers, and farmers all face the onerous prospect of Clean Water Act compliance?

2. The EPA has appeared to back away from some of the positions it took in the *Pronsolino* case. For example, in *American Wildlands v. Browner*, 260 F.3d 1192 (10th Cir. 2001), EPA argued that Montana could choose to adopt a rule exempting nonpoint sources from compliance with water quality standards. More recently, EPA has taken the position that state water quality rules related to nonpoint sources are, categorically, not water quality standards and thus not subject to EPA review and approval. Yet, EPA continues to insist that nonpoint sources remain subject to requirements developed through TMDLs. Are EPA's positions consistent with each other? Are they consistent with the Clean Water Act?

3. As discussed in other parts of this book, land management activities (including forestry, agriculture, and grazing) are both significant sources of greenhouse gas emissions and potentially significant sinks as well. Can regulation under the Clean Water Act provide a mechanism to enhance their functions as sinks? Even if it can, should these types of activities be subject to onerous regulation to offset emissions generated by all of us?

