

ENVIRONMENTAL JUSTICE IN THE TRIBAL CONTEXT: A MADNESS TO EPA'S METHOD

BY

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Many American Indian tribes and their members are among those most burdened by mercury contamination. When the Environmental Protection Agency (EPA) set out to regulate mercury emissions from coal-fired utilities, it was aware that mercury contamination and regulation affects tribal rights and resources. EPA's inquiry, therefore ought to have been differently framed, given tribes' unique legal and political status. Specifically, EPA ought to have confronted squarely the impact of its decision on tribes' fishing rights, rather than consider these rights as a mere afterthought. EPA's process, too, should have been differently conducted. EPA should have consulted with tribes from the outset, in an effort to comprehend what was at stake from tribes' perspectives. Although EPA purported to consider environmental justice as it developed its "Clean Air Mercury Rule," it failed utterly. In this rulemaking, EPA perpetuated, rather than ameliorated, a long history of cultural discrimination against tribes and their members. This Article examines the missteps in EPA's work with the mercury rule, in the hope that the lessons gleaned here might help EPA's future efforts to consider and respond to environmental injustice in the tribal context.

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I. INTRODUCTION

The rivers flowing through the [Bad River] Reservation and Lake Superior itself are important spawning grounds for sturgeon, lake-run trout, and walleye as well as many other fish, which make up a significant subsistence resource for the 1,200 Tribal members living on the Reservation and in the surrounding area. However, Band members, like many other Americans, need to restrict their fish consumption to avoid mercury poisoning. . . . It is unacceptable to continue to let our children be exposed to such a dangerous toxin while partaking of a food source that tribal members have enjoyed for centuries; a food source that should be a healthy part of their diet.

Bad River Band of Lake Superior Tribe of Chippewa Indians¹

Over the last several decades this toxic substance, mercury, has caused many human health and ecological problems for Indian people. . . . Mercury is known to seriously impact fish eating wildlife such as loons and mink. These animals are a value to the ecosystem they inhabit and they are clan symbols for Tribal members. If these animals are threatened, Tribal culture is threatened.

Minnesota Chippewa Tribe²

GLIFWC's member tribes are particularly concerned about mercury contamination of ogaa (walleye), within the area ceded to the United States in treaties with the Chippewa dated July 29, 1837, and October 4, 1842. These treaties guaranteed to the Chippewa tribes certain hunting, fishing and

¹ Letter from Donald Moore Sr., Tribal Chairman, Bad River Band of Lake Superior Tribe of Chippewa Indians, to Micheal Leavitt, Adm'r, Env'tl. Prot. Agency (Apr. 19, 2004), *available at* <http://www.regulations.gov/fdmspublic/ContentViewer?objectId=09000064800ac810&disposition=attachment&contentType=pdf> [hereinafter Bad River Band of Lake Superior Tribe of Chippewa Indians, Comments on the Proposed CAMR] (providing comments on the Proposed National Emissions Standards for Hazardous Air Pollutants; and, in the Alternative, Proposed Standards for Performance for New and Existing Stationary Sources: Electric Steam-Generating Units, Docket No. OAR-2002-0056-2118).

² Letter from Norm W. Deschampe, President, The Minnesota Chippewa Tribe, to Micheal Leavitt, Adm'r, Env'tl. Prot. Agency (Apr. 28, 2004), *available at* <http://www.regulations.gov/fdmspublic/ContentViewer?objectId=09000064800b287b&disposition=attachment&contentType=pdf> [hereinafter The Minnesota Chippewa Tribe, Letter to EPA] (providing comments on Proposed National Emissions Standards for Hazardous Air Pollutants; and, in the Alternative, Proposed Standards for Performance for New and Existing Stationary Sources: Electric Steam-Generating Units, Docket No. OAR-2002-0056-3325).

gathering rights in the ceded territory. The purpose of this guarantee was to ensure that the tribes could continue their way of life to meet subsistence, economic, cultural, spiritual and medicinal needs. . . .

Fishing and fish consumption are central to Chippewa (or Anishinaabe) culture. The practice of harvesting, sharing, and consuming ogaa (walleye) is passed down from generation to generation. . . . While these practices preserve traditional Anishinaabe 'lifeways,' there is concern in tribal communities that methylmercury in ogaa may pose serious threats to the health of tribal members' young and unborn children and therefore the continuation of these traditional lifeways.

Great Lakes Indian Fish and Wildlife Commission (GLIFWC)³

Although many of our Tribal members continue to fish and consume fish despite [Maine's statewide] fish consumption advisory, there are many Tribal families that no longer engage in cultural practices associated with fishing, and are thus not passing these traditions to new generations of Tribal members. The loss of our cultural ceremonies, language, and songs associated with fishing represents a significant impact on our Tribe, and results in permanent loss of the culture which defines our Tribe.

Aroostook Band of Micmacs⁴

When the Environmental Protection Agency (EPA) announced its proposed rule for mercury emissions from coal-fired utilities,⁵ tribe after tribe tried to impress upon EPA the multiple and profound impacts of mercury contamination from their perspectives. Tribe after tribe sought to move EPA to consider the children who would forever suffer neurological damage and other harms. Tribe after tribe came forward with data for EPA that described the particular circumstances relevant to members' exposure.

³ Letter from James H. Schlender, Executive Adm'r, Great Lakes Indian Fish & Wildlife Comm'n (GLIFWC), to Env'tl. Prot. Agency (June 29, 2004), *available at* <http://www.regulations.gov/fdmspublic/ContentViewer?objectId=09000064800b392e&disposition=attachment&contentType=pdf> [hereinafter Letter from GLIFWC to EPA] (providing comments on Proposed National Emissions Standards for Hazardous Air Pollutants; and, in the Alternative, Proposed Standards for Performance for New and Existing Stationary Sources: Electric Steam-Generating Units, Docket No. OAR-2002-0056-3527). The Great Lakes Indian Fish & Wildlife Commission "has eleven member tribes: the Bad River, Lac Courte Oreilles, Lac du Flambeau, Red Cliff, Sokaogon (Mole Lake), and St. Croix tribes in Wisconsin; the Mille Lacs and Fond du Lac tribes in Minnesota; and the Bay Mills, Keweenaw Bay and Lac Vieux Desert tribes in Michigan." *Id.*

⁴ Letter from William W. Phillips, Tribal Chief, Aroostook Band of Micmacs, to Env'tl. Prot. Agency (Apr. 30, 2004), *available at* <http://www.regulations.gov/fdmspublic/ContentViewer?objectId=09000064800ae485&disposition=attachment&contentType=pdf> [hereinafter Aroostook Band of Micmacs, Letter to EPA] (providing comments on Proposed National Emissions Standards for Hazardous Air Pollutants; and, in the Alternative, Proposed Standards for Performance for New and Existing Stationary Sources: Electric Steam-Generating Units, Docket No. OAR-2002-0056-2483).

⁵ Proposed National Emissions Standards for Hazardous Air Pollutants; and, in the Alternative, Proposed Standards for Performance for New and Existing Stationary Sources: Electric Utility Steam-Generating Units, 69 Fed. Reg. 4652 (proposed Jan. 30, 2004) (to be codified at 40 CFR pts. 60, 63) [hereinafter EPA, Proposed Mercury Rule].

And tribe after tribe took pains to remind EPA of its obligations under treaties and other laws, given tribes' unique political and legal status.

The rulemaking process, however, revealed an agency intent on providing a reprieve from regulation to coal-fired utilities, despite what this commitment meant for the health and life prospects of millions of children. It showed an agency seemingly unconcerned with any legal obligations or executive commitments to the tribes, despite the hostility to American Indian peoples implicit in this stance. Ultimately, it resulted in a final rule, which EPA dubbed the "Clean Air Mercury Rule" (CAMR),⁶ completely divorced from the relevant statutory directives under the Clean Air Act—a point underscored by the D.C. Circuit's stern rebuke to EPA when it vacated the CAMR in *New Jersey v. Environmental Protection Agency* (*New Jersey v. EPA*) in February, 2008.⁷

Given the antipathy of the second Bush Administration to environmental regulation in general it is perhaps unsurprising that the EPA's work on the CAMR is not a model for considering environmental justice in the tribal context. It is an understatement to say that the Bush EPA has been unsympathetic to calls for environmental justice, whether from tribes or other affected groups. Instead, the Bush EPA has flouted its obligations to protect human and environmental health at virtually every turn. Indeed, the Bush EPA has been particularly bold in its willingness to disregard its statutory and other legal commands, to the point that the courts—ordinarily deferential—have felt obligated to rein it in.⁸ Thus, one can hope that we have witnessed a high water mark in terms of the agency's disdain for its mission and indifference to those harmed by its decisions. And, happily, the D.C. Circuit's result in *New Jersey v. EPA* means that the EPA must go back to the drawing board and produce a rule that is consistent with its legal obligations.⁹ As such, some of the most glaring deficiencies in the CAMR will need to be remedied, with some of the dire impacts to tribes and their members ameliorated as a consequence. Still, it seems important to examine

⁶ Standards for Performance for New and Existing Sources: Electric Utility Steam Generating Units, 70 Fed. Reg. 28,606 (May 18, 2005) [hereinafter EPA, Final CAMR] (to be codified at 40 C.F.R. pts. 60, 72, 75).

⁷ *New Jersey v. Env'tl. Prot. Agency* (*New Jersey v. EPA*), Nos. 05-1097, 05-1104, 05-1116, 05-1118, 05-1158, 05-1159, 05-1160, 05-1162, 05-1163, 05-1164, 05-1167, 05-1174, 05-1175, 05-1176, 05-1183, 05-1189, 05-1263, 05-1267, 05-1270, 05-1271, 05-1275, 05-1277, 06-1211, 06-1220, 06-1231, 06-1287, 06-1291, 06-1293, 06-1294, 2008 WL 341338, at *7 (D.C. Cir. Feb. 8, 2008). See also David A. Fahrenthold & Steven Mufson, *Court Rejects Emission 'Trades,'* WASH. POST, Feb. 9, 2008, at A03.

⁸ See, e.g., Harvard Law Review Ass'n, *The Supreme Court, 2006 Term Leading Cases*, § (III)(G)(3), 121 HARV. L. REV. 415, 416 (2007), available at <http://www.harvardlawreview.org/issues/121/nov07/nov07.shtml> (observing that the Supreme Court, in the 2006 term, issued "a rebuke to the White House's ideological approach to environmental policy" and signaled a "retreat from providing expansive judicial deference toward presidential control over the administrative branch").

⁹ *New Jersey v. EPA*, 2008 WL 341338, at * 4 (ruling that, because coal-fired utilities had been listed as a source category for regulation under Clean Air Act § 112, EPA could not later rescind this listing without making the specific findings required by section 112(c)(9) of the Clean Air Act, which EPA conceded it had not made, and vacating and remanding the CAMR).

EPA's analysis of the CAMR for the lessons it might provide for agencies' future efforts to consider environmental justice in the tribal context.¹⁰

Part II of this Article provides background for EPA's decision. This Part explains the sources and effects of mercury contamination and sketches the history of EPA's efforts at mercury regulation. This Part closes by observing that many tribes and their members are prominent among those harmed by mercury contamination and pointing out that EPA should therefore have been aware of the particular constellation of legal obligations and normative considerations that governed its work. Part III elaborates the touchstones for considering environmental justice in the tribal context. This Part discusses tribes' unique legal and political status, focusing in particular on the treaty-secured rights to fish that belong to most of the fishing tribes. It also discusses tribes' different experience of the harms of mercury contamination. Part IV argues that, while EPA purported to consider environmental justice in the CAMR rulemaking, EPA failed to account adequately for tribes' unique circumstances. This Part scrutinizes the rule and its supporting analyses in an effort to glean lessons that might inform EPA's efforts in the future, in concert with affected tribes, to make progress toward environmental justice.

II. MERCURY CONTAMINATION AND REGULATION

In order to explore EPA's analysis of the CAMR, it is important to appreciate the backdrop against which EPA worked. Specifically, it is necessary to understand mercury's human and ecological health effects, the sources of mercury releases to the environment, the chief pathway for human exposure to methylmercury, and the current extent of human exposure. It is also important to consider the history of efforts to regulate mercury under the Clean Air Act, including the particular events leading up EPA's issuance of its final rule governing mercury emissions from coal-fired utilities.

A. Mercury Contamination

Mercury has long been known to be highly toxic to humans.¹¹ Methylmercury is a potent neurotoxin. The developing fetus and children are particularly sensitive to methylmercury's adverse neurological effects.¹²

¹⁰ This is not to suggest that EPA's failure to meaningfully regulate mercury does not have grave consequences for those in other groups, including various communities of color and low-income communities, nor to downplay the flaws in EPA's environmental justice analysis vis-à-vis these groups. The observations in this Article, however, are limited to the particular circumstances of tribes and their members. Nonetheless, it may be that some of the criticisms leveled herein hold for other groups as well.

¹¹ COMM. ON THE TOXICOLOGICAL EFFECTS OF METHYLMERCURY, NAT'L RESEARCH COUNCIL (NRC), TOXICOLOGICAL EFFECTS OF METHYLMERCURY 175-81 (2000) [hereinafter NRC, METHYLMERCURY].

¹² Leonardo Trasande et al., *Public Health and Economic Consequences of Methyl Mercury Toxicity to the Developing Brain*, 113 ENVTL. HEALTH PERSP. 590, 594 (2005) [hereinafter

Exposure to even small amounts of methylmercury during this developmental window can lead to irreversible neurological damage.¹³ Methylmercury exposure has also been associated with cardiac abnormalities in children and adverse cardiovascular effects in adults.¹⁴

Mercury is toxic to other species as well. Methylmercury exposure has been associated with adverse neurological and reproductive effects, behavioral abnormalities, and even death in birds and mammals that depend on fish, including loons, kingfishers, osprey, bald eagles, river otters, minks, and the endangered Florida panther.¹⁵

Once released into the environment, mercury's behavior is complex, and includes local, regional, and global components.¹⁶ Anthropogenic sources of mercury increasingly account for these releases, although natural processes contribute as well. Anthropogenic emissions of mercury in the United States are currently dominated by coal-fired utilities.¹⁷ Mercury is emitted from utilities in three species, each of which is characterized by a different fate and transport in the environment.¹⁸ In every case, this mercury is deposited to surrounding land and water, although at varying distances and times. Mercury that enters water bodies becomes methylated by microorganisms present in these aquatic environments.¹⁹ Methylmercury is an extremely bioavailable form of mercury, readily taken up by fish in these waters. Methylmercury bioaccumulates in fish tissue, which in turn becomes

Trasande et al., *Economic Consequences of Mercury*] (citing adverse effects on those exposed *in utero* and additional adverse effects on those exposed as neonates and infants up to age two, when blood-brain barrier remains vulnerable). See also Leonardo Trasande et al., *Applying Cost Analyses to Drive Policy That Protects Children: Mercury as a Case Study*, 1076 ANNALS N.Y. ACAD. SCI. 911, 919 (2006) [hereinafter Trasande et al., *Cost Analyses and Mercury Policy*]; Letter from Melanie A. Marty, Children's Health Prot. Advisory Comm., to Michael Leavitt, Adm'r., Env'tl. Prot. Agency, at 6 (Jan. 26, 2004) (providing comments to the Proposed Mercury Rule, Docket 2002-0056-5570) ("In addition to exposure *in utero*, infants and children have ongoing dietary exposure to methylmercury. Children and infants are sensitive to mercury's effects because their nervous systems continue to develop until about age 20.").

¹³ NRC, METHYLMERCURY, *supra* note 11, at 16–18.

¹⁴ Phillippe Grandjean et al., *Cardiac Autonomic Activity in Methylmercury Neurotoxicity: 14-Year Follow-Up of a Faroese Birth Cohort*, 144 J. PEDIATRICS 169, 172–73 (2004); Elisio Guallar et al., *Mercury, Fish Oils, and the Risk of Myocardial Infarction*, 347 NEW ENG. J. MED. 1747 (2002); see also NRC, METHYLMERCURY *supra* note 11, at 175–81.

¹⁵ OFFICE OF AIR QUALITY PLANNING & STANDARDS & OFFICE OF RESEARCH & DEV., U.S. ENVTL. PROT. AGENCY, 1 MERCURY STUDY REPORT TO CONGRESS 3-43 to 3-45 (1997), available at <http://www.epa.gov/ttn/caaa/t3/reports/volume1.pdf> [hereinafter MERCURY STUDY REPORT TO CONGRESS].

¹⁶ For discussions of aspects of the mercury cycle available to EPA at the time of the rulemaking, see *id.* at 3-1 to 3-5; NRC, METHYLMERCURY, *supra* note 11, at 13–17.

¹⁷ NE. STATES FOR COORDINATED AIR USE MGMT., MERCURY EMISSIONS FROM COAL-FIRED POWER PLANTS, THE CASE FOR REGULATORY ACTION 2-1 to 2-2 (2003), available at www.nescaum.org/documents/pr031104mercury.pdf (noting that coal-fired power plants account for 40.8% of the United States' total mercury output from anthropogenic sources).

¹⁸ *Id.* at 2-4 (specifying that mercury is emitted in its elemental form, its oxidized form, and adsorbed to particulates).

¹⁹ See NRC, METHYLMERCURY, *supra* note 11, at 18 ("Conversion of inorganic Hg [mercury] to MeHg [methylmercury] occurs primarily in microorganisms especially in aquatic systems.").

a source of exposure to other fish, birds, mammals, and humans that consume this fish tissue.²⁰

Many of the fish species on which humans rely for food are highly contaminated with methylmercury. In fact, humans are exposed to methylmercury primarily through the consumption of contaminated fish.²¹ However, there is considerable variability among humans with respect to fish consumption practices.²² There is also considerable variability among fish species with respect to the concentration of methylmercury harbored.²³ As a consequence, different people will have quite different levels of exposure. Some Native Americans, for example, are very highly exposed.²⁴ Members of the fishing tribes consume fish in greater amounts, at higher frequencies, and in accordance with different seasonal or cultural constraints than members of the general population.²⁵ Members of the fishing tribes also often consume species that are relatively highly contaminated.

Based on studies of methylmercury's adverse human health effects, EPA has derived a reference dose (RfD) of 0.1 microgram per kilogram of body weight per day.²⁶ This RfD represents a threshold for exposure, i.e., the amount that EPA believes can be ingested each day over the course of a lifetime without adverse health effects.²⁷ According to a recent study, some 15.7% of women of childbearing age in the United States had blood mercury levels above EPA's RfD, thus posing a risk to a developing fetus.²⁸ Importantly, this study also found marked differences among women in groups characterized by race/ethnicity. Whereas 15.3% of "white" women of childbearing age had mercury in their blood above the RfD, this number more than doubles, to 31.5%, for women who identified themselves as "other," a category comprised primarily of Native Americans, Pacific Islanders, those of "Asian origin," or those of "mixed race."²⁹

As a consequence of mercury contamination, health and environmental agencies have had to issue fish consumption advisories recommending that women and children reduce or eliminate entirely their consumption of some fish species.³⁰ In the 1990s, advisories due to mercury were increasingly

²⁰ See *id.* at 18 (describing the process through which MeHg "bioaccumulates up the food chain," resulting in "human and piscivorous wildlife exposure to MeHg").

²¹ See *id.* at 1.

²² See, e.g., Catherine A. O'Neill, *Mercury, Risk, and Justice*, 34 ENVTL. L. REP. 11,070, 11,075-79 (2004) [hereinafter O'Neill, *Mercury, Risk, and Justice*].

²³ *Id.*

²⁴ *Id.*

²⁵ See MERCURY STUDY REPORT TO CONGRESS, *supra* note 15, at 4-23 (displaying fish consumption rates in various percentiles of the general U.S. population and in various percentiles of various tribal populations).

²⁶ *Id.* at O-2.

²⁷ NRC, METHYLMERCURY, *supra* note 11, at 2 n.2.

²⁸ Kathryn R. Mahaffey et al., *Blood Organic Mercury and Dietary Mercury Intake: National Health and Nutrition Examination Survey, 1999 and 2000*, 112 ENVTL. HEALTH PERSP. 562, 565 (2004).

²⁹ *Id.* at 565.

³⁰ U.S. Env'tl. Prot. Agency, Fish Advisories, Basic Information, <http://www.epa.gov/>

issued throughout the United States, with some states having to place all of their lakes, rivers, and coastal waters under advisory. In 2001, widespread methylmercury contamination prompted the Food and Drug Administration (FDA) and the EPA to issue the first-ever national fish consumption advisory.³¹

B. EPA's Efforts to Regulate Mercury

During this time, EPA took steps to regulate the major sources of mercury emissions. In the 1990s, it issued standards for two of the top three categories of emitters—medical waste incinerators and municipal waste combustors—requiring that these sources reduce their mercury emissions on the order of 90%.³² In 2000, EPA listed the third of these major contributors—coal-fired utilities—among the source categories to be regulated under section 112 of the Clean Air Act, finding regulation of mercury from these sources to be “appropriate and necessary.”³³ As a consequence of this listing, it was widely expected that EPA would require similarly significant reductions in utilities’ mercury emissions.³⁴ Crucially, it was also widely expected that these reductions would be realized quickly.³⁵ These expectations stemmed from important features of section 112 of the Clean Air Act, ushered in by the 1990 Clean Air Act Amendments to address the inaction and delay that had plagued earlier versions of the Act. Specifically, EPA is directed to issue technology-based standards (known as MACT standards) for those source categories listed under section 112, and sources are given a tight, three-year timeline to comply with the resulting emissions limits (with the possibility of, at most, a one-year extension).³⁶ EPA is further directed to issue additional standards, within eight years, if this MACT standard leaves unaddressed any residual risk to human or environmental health. Thus, up until the time that EPA announced its

waterscience/fish/basic.htm (last visited Apr. 13, 2008). *See also* U.S. Env'tl. Prot. Agency, *Nat'l Listing of Fish Advisories, General Fact Sheet: 2005/06 Nat'l Listing*, <http://www.epa.gov/waterscience/fish/advisories/2006/index.html> (last visited Apr. 13, 2008) (reporting that mercury is at least partly responsible for 80% of all fish consumption advisories).

³¹ U.S. Food & Drug Admin., FDA Talk Paper, FDA Announces Advisory of Methyl Mercury in Fish (Jan. 12, 2001), <http://www.fda.gov/bbs/topics/ANSWERS/2001/ANS01065.html> (last visited Apr. 13, 2008). This advisory was reiterated and expanded to include additional fish species in 2004. U.S. ENVTL. PROT. AGENCY & FDA, WHAT YOU NEED TO KNOW ABOUT MERCURY IN FISH AND SHELLFISH, *available at* <http://www.epa.gov/waterscience/fish/MethylmercuryBrochure.pdf>.

³² 40 C.F.R. pt. 60 subpts. Ce, Ec (hospital medical waste incinerators); *id.* subpts. Cb, Eb (Hospital/Medical/Infectious waste incinerators); *id.* subpt. 5. Cb, Eb (municipal waste combustors); *see* O'Neill, *Mercury, Risk and Justice*, *supra* note 22, at 11,081.

³³ Regulatory Finding on the Emissions of Hazardous Air Pollutants From Electric Utility Steam-Generating Units, 65 Fed. Reg. 79,825, 79,825–26 (Dec. 20, 2000); Clean Air Act, 42 U.S.C. § 7412(n)(1)(A) (2000).

³⁴ *See* O'Neill, *Mercury, Risk, and Justice*, *supra* note 22, at 11,081.

³⁵ *See id.*; *see also* RENA I. STEINZOR, MOTHER EARTH AND UNCLE SAM: HOW POLLUTION AND HOLLOW GOVERNMENT HURT OUR KIDS 114–15 (2008) (discussing EPA's promise to finalize MACT standards by December 2003).

³⁶ 42 U.S.C. §§ 7412(d)(1), (d)(2), (i)(3)(A) (2000).

proposed rule for coal-fired utilities in December 2003, observers looked forward to a MACT standard that would require these sources to achieve roughly 90% reductions in their mercury emissions, and to do so by 2007.³⁷

Instead, the EPA set out two alternative proposals to address mercury from coal-fired utilities: a cap-and-trade program (to be issued under either section 112 or section 111), and a watered-down version of a MACT standard (one that would require only approximately a 55% reduction in emissions) under section 112.³⁸ EPA's proposed rule was highly controversial. It fomented a record number of public comments, Congressional hearings, and requests for oversight, and considerable criticism from almost every quarter.

In its final rule, EPA abandoned any pretense of providing a MACT standard. Rather, EPA opted for a cap-and-trade program, promulgated under section 111. The CAMR instates a cap on mercury emissions from utilities in two phases. The first-phase cap is set for 2010 to require no additional reductions beyond those already to be achieved as "co-benefits" of a companion rule, known as the "Clean Air Interstate Rule" (CAIR), governing criteria pollutants in the eastern portion of the country. Thus, the CAMR's first-phase cap is set to allow utilities to emit thirty-eight tons of mercury per year—down from roughly forty-eight tons per year emitted by these sources at the outset of the program. The second-phase cap is set for 2018 to allow utilities to emit fifteen tons of mercury per year. However, given structural features of the cap-and-trade program, the 70% reduction in emissions that this second-phase cap promises will not actually be realized until well after the year 2020,³⁹ and perhaps even as late as the 2030s.⁴⁰ Note,

³⁷ See O'Neill, *Mercury, Risk, and Justice*, *supra* note 22, at 11,081.

³⁸ EPA, Proposed Mercury Rule, *supra* note 5. For discussion of the proposed rule, see generally Lisa Heinzerling & Rena I. Steinzor, *A Perfect Storm: Mercury and the Bush Administration*, 34 ENVTL. L. REP. 10,485 (2004); O'Neill, *Mercury, Risk, and Justice*, *supra* note 22. EPA's Office of the Inspector General criticized the proposed MACT standard as "anemic." OFFICE OF THE INSPECTOR GEN., U.S. ENVTL. PROT. AGENCY, ADDITIONAL ANALYSES OF MERCURY EMISSIONS NEEDED BEFORE EPA FINALIZES RULES FOR COAL-FIRED ELECTRIC UTILITIES, REP. NO. 2005-P-00003, at "At a Glance" & 11-16 (2005), *available at* <http://www.epa.gov/oigearth/reports/2005/20050203-2005-P-00003.pdf>.

Evidence indicates that EPA senior management instructed EPA staff to develop a Maximum Achievable Control Technology (MACT) standard for mercury that would result in national emissions of 34 tons annually, instead of basing the standard on an unbiased determination of what the top performing units were achieving in practice. . . . [T]he standard likely underestimates the average amount of mercury emissions reductions achieved by the top performing 12 percent of utilities, the minimum level for a MACT standard required by the Clean Air Act.

Id. at "At a Glance."

³⁹ U.S. ENVTL. PROT. AGENCY, METHODOLOGY TO GENERATE DEPOSITION, FISH TISSUE METHYLMERCURY CONCENTRATIONS, AND EXPOSURES FOR DETERMINING EFFECTIVENESS OF UTILITY EMISSION CONTROLS 3, tbls.1.1 & 1.2 (2005), *available at* http://www.epa.gov/ttn/atw/utility/eff_fnl_tsd-031705_corr_oar-2002-0056-6301.pdf [hereinafter EPA, CAMR EFFECTIVENESS TSD] (providing figures for emissions reductions presented in kg/yr; author's conversions). According to EPA's models, under CAMR in 2020, total national mercury emissions will be approximately 25 tons. This amounts to a 48% reduction from 1999 baseline emissions of approximately 48 tons. *Id.*

⁴⁰ See JAMES E. MCCARTHY, MERCURY EMISSIONS FROM ELECTRIC POWER PLANTS: AN ANALYSIS

too, that the cap-and-trade program, issued as it was under the auspices of Section 111, makes no provision for addressing any residual risk to human health or the environment, as would be required under section 112.

EPA announced the final CAMR with some fanfare, heralding it as the “first ever federal rule to permanently cap and reduce mercury emissions from coal-fired power plants”⁴¹ and citing the fact that “[w]hen fully implemented, [the rule] will reduce utility emissions of mercury from 48 tons a year to 15 tons, a reduction of 70%.”⁴² However, many did not share EPA’s enthusiasm for the final CAMR. Those affected decried the fact that emissions reductions would be greatly diminished and delayed relative to the reductions attainable under a section 112 MACT-based approach, leaving them exposed for years to come. Critics pointed to a rulemaking process that had been highly politicized, marred by procedural irregularities and reversals-of-course on EPA’s part.⁴³ Congress issued a rare request for reconsideration. State after state declined to participate in EPA’s cap-and-trade program, calling instead for more meaningful and immediate reductions within their borders. Ultimately, several states, tribes, and environmental groups sued the EPA.

The harms of mercury contamination are visited overwhelmingly on various tribes and their members, particularly the fishing peoples of the Great Lakes, the Northeast, and the Pacific Northwest. EPA was aware of this fact as it embarked upon its efforts to regulate mercury. EPA acknowledged early on, in its Preamble to the proposed rule, that

[s]ome subpopulations in the U.S., such as: Native Americans, Southeast Asian Americans, and lower income subsistence fishers, may rely on fish as a primary source of nutrition and/or for cultural practices. Therefore, they consume larger amounts of fish than the general population and may be at a greater risk to the adverse health effects from Hg due to increased exposure.⁴⁴

OF EPA’S CAP-AND-TRADE REGULATIONS, CONGRESSIONAL RESEARCH SERVICE REPORT FOR CONGRESS 7 (updated Jan. 13, 2006) (noting that “[i]t appears that full compliance with the 70% reduction might be delayed until 2030”). McCarthy further comments that

EPA has not provided an estimate of the year in which the 70% reduction will be attained. The Integrated Planning Model, which the agency uses to calculate regulatory impacts, runs to the year 2030 and assumes that all allowances will be used by the end date. Discussions we held with EPA staff indicate that some think the allowances will be used more quickly (perhaps as early as 2025), while others think use of allowances will be stretched into the 2030s.

Id. at 7 n.24.

⁴¹ U.S. Env’tl. Prot. Agency, Clean Air Mercury Rule: Basic Information, <http://www.epa.gov/air/mercuryrule/basic.htm> (last visited Apr. 13, 2008).

⁴² *Id.* Note that here and elsewhere in public documents, EPA assiduously avoided the claim that the 70% emissions reductions would in fact be achieved by the advertised date, 2018, instead shrewdly skirting the question by using the phrase “when fully implemented.” *Id.*

⁴³ STEINZOR, *supra* note 35, at 103–25 (recounting numerous irregularities and abrupt changes in the course of mercury rulemaking at EPA).

⁴⁴ EPA, Proposed Mercury Rule, *supra* note 5, at 4709.

EPA should therefore have been aware of the unique constellation of legal obligations and normative considerations that governed its work. While EPA purported to consider environmental justice in the CAMR rulemaking, EPA's account reveals a misunderstanding of what it would mean to evaluate and respond to the particular issues raised by the tribal context.

III. ENVIRONMENTAL JUSTICE IN THE TRIBAL CONTEXT

Environmental agencies' decisions must be different when tribes and their members are among those affected. Environmental justice in the tribal context cannot be contemplated apart from a recognition of tribes' unique legal and political status.⁴⁵ As well, environmental justice in the tribal context cannot be contemplated without appreciating that environmental contamination will often have impacts on a tribe and its members that are not only different in degree but also different in kind from the impacts experienced by the general population or even by other highly exposed groups. These claims should not be unfamiliar to EPA, stemming as they do from longstanding relationships and rights. EPA should thus have been alert, as it contemplated mercury contamination and regulation, to the different orientation that its work needed to take.

A. Tribes' Unique Legal and Political Circumstances

American Indian tribes are sovereign entities. Tribes comprise distinct, self-governing peoples. Given their sovereign status, tribes are viewed as possessing certain inherent rights. Among the attributes of sovereignty, enjoyed by Indian tribes as by other nations, is the power to enter into treaties: "[t]he very term 'nation,' so generally applied to [American Indian tribes], means 'a people who are distinct from others.' The constitution . . . admits their rank among those powers who are capable of making treaties."⁴⁶ The very existence, then, of the treaties between the United States and the various fishing tribes is an affirmation of the inherent, pre-existing rights in each sovereign treating party.

By means of the treaties, the fishing tribes ceded vast expanses of their aboriginal lands to the United States but secured in return a guarantee that their right to catch and consume fish would be protected in perpetuity.⁴⁷ For

⁴⁵ See, e.g., Dean B. Suagee, *Dimensions of Environmental Justice in Indian Country and Native Alaska*, SECOND NATIONAL PEOPLE OF COLOR ENVIRONMENTAL LEADERSHIP SUMMIT RESOURCE PAPER SERIES 1 (2002), available at <http://web.archive.org/web/20040710044504/http://www.ejrc.cau.edu/summit2/IndianCountry.pdf>; Jana L. Walker et al., *A Closer Look at Environmental Justice in Indian Country*, 1 SEATTLE J. SOC. JUSTICE 379, 379 (2002); JAMES M. GRIJALVA, CLOSING THE CIRCLE: ENVIRONMENTAL JUSTICE IN INDIAN COUNTRY 4 (2008).

⁴⁶ *Worcester v. Georgia*, 31 U.S. (6 Pet.) 515, 559 (1832).

⁴⁷ For those tribes that entered into treaties, the historical record from both sides is very clear on the point that protection of the tribes' pre-existing fishing rights was crucial to obtaining the tribes' assent to the treaties. As courts have observed in the course of interpreting similar fishing clauses in the 1855 treaties between the Pacific Northwest tribes and the United States:

example, the Treaty of 1837, between the Lake Superior Chippewa and the United States, provides: "The privilege of hunting, fishing, and gathering the wild rice, upon the lands, the rivers and the lakes included in the territory ceded, is guaranteed to the Indians"⁴⁸ In *Lac Courte Oreilles Band of Lake Superior Chippewa Indians v. Wisconsin (Lac Courte Oreilles)*, the court explained that, by dint of the 1837 and 1842 treaties, the Chippewa were

guaranteed the right to make a moderate living off the land and from the waters in and abutting the ceded territory and throughout that territory by engaging in hunting, fishing, and gathering as they had in the past and by consuming the fruits of that hunting, fishing, and gathering, or by trading the fruits of that activity for goods they could use and consume in realizing that moderate living.⁴⁹

As the court there recognized, the treaty protections include not only tribal members' right to fish in the ceded area, but also their right to consume the fish they catch or to sell it to others for others' consumption.

From the perspectives of the Native peoples, the treaties were viewed as sacred. They were revered as sovereign compacts, as charters for respectful co-existence.⁵⁰ From the perspective of the United States, the treaties were considered the "supreme law of the land"⁵¹ under the Constitution. The lands ceded by the tribes under the treaties contributed immensely to the wealth and prosperity of the young United States and its citizens.⁵² It did not take

Governor Stevens and his associates were well aware of the 'sense' in which the Indians were likely to view assurances regarding their fishing rights. During the negotiations, the vital importance of the fish to the Indians was repeatedly emphasized by both sides, and the Governor's promises that the treaties would protect that source of food and commerce were crucial in obtaining the Indians' assent.

Washington v. Wash. State Commercial Passenger Fishing Vessel Ass'n, 443 U.S. 658, 676 (1979). Some tribes' rights to fish are not secured by treaty, but instead protected by executive orders and other federal laws. See, e.g., *Parravano v. Babbitt*, 70 F.3d 539, 546-47 (9th Cir. 1995).

⁴⁸ Treaty with the Chippewas art. V, July 29, 1837, 7 Stat. 536. See also Treaty with the Chippewas art. II, Oct. 4, 1842, 7 Stat. 592.

⁴⁹ 653 F. Supp. 1420, 1426 (W.D. Wis. 1987).

⁵⁰ See, e.g., ROBERT A. WILLIAMS JR., *LINKING ARMS TOGETHER: AMERICAN INDIAN TREATY VISIONS OF LAW AND PEACE, 1600-1800*, at 47-48 (1997).

⁵¹ *Worcester*, 31 U.S. at 531.

⁵² See, e.g., Lynda V. Mapes, *Culverts Add Obstacles to Salmon, State, Politics*, SEATTLE TIMES, Jan. 24, 2008, available at http://seattletimes.nwsource.com/html/localnews/2004142062_culverts24m.html. Mapes reports that while tribes' treaty rights were recently reiterated in court, the State of Washington (Defendant) highlights the large costs of fixing culverts that block habitat and deplete salmon populations. *Id.* She cites Billy Frank Jr., "a Nisqually tribal elder and chairman of the Northwest Indian Fisheries Commission":

Frank, for one, likes to remind people that amid all the grumbling about the costs of fixing culverts and rebuilding salmon runs, non-Indians enjoy uncountable economic prosperity from the lands the tribes gave up in the treaties so long ago. In fighting to get the culverts fixed, tribes are simply seeking their part of the bargain, Frank said.

Id.

long, however, for the treaty promises to be violated by non-Indians. Professor Bill Rodgers recounts:

In the latter half of the nineteenth century, the fishing grounds were quickly enclosed. . . . In hundreds of confrontations, the Indians met owners who hadn't heard of the fishing 'servitude' or who didn't believe in it; who knew for sure that access was not here, but over there; who would let the gates down for only a small and reasonable fee; who would insist the fishery was a private one; . . . The Indians would be introduced to fences and road closures and padlocks and abutments and signs and guard dogs and firearms that were among the pleasures of all fee-simple property owners. . . . Litigation would begin in 1884, and in a fundamental sense, it would never end. Treaty fishing lawsuits continue today into the 21st century.⁵³

But the United States courts, over time, have continued to affirm the various facets of the treaty guarantees. First, courts have emphasized that, by means of the treaties, tribes ceded certain rights, but that all those rights not expressly relinquished by the tribes were retained. The treaty exchanges, therefore, represent "not a grant of rights to the Indians, but a grant of rights *from* them—a reservation of those not granted."⁵⁴ Second, courts have stated that the tribes' fishing rights *differ* from those of non-Indians: "The treaty clauses regarding off-reservation fishing . . . secured to the Indians' rights, privileges and immunities distinct from those of other citizens."⁵⁵ Third, courts have affirmed that tribes' fishing rights are permanent.⁵⁶ Although circumstances surrounding the fishery resource may change, the right itself is not as a consequence relinquished or diminished. "The passage of time and the changed conditions affecting the water courses and the fishery resources [in areas governed by the treaties] have not eroded and cannot erode the right secured by the treaties" ⁵⁷ Fourth, courts have

⁵³ WILLIAM H. RODGERS JR., ENVIRONMENTAL LAW IN INDIAN COUNTRY 25 (2005).

⁵⁴ U.S. v. Winans, 198 U.S. 371, 381 (1905) (emphasis added). Professor Rodgers elaborates:

These treaty rights gave the Indians nothing they did not already have. The treaties reserve places, opportunities, and practices they had long enjoyed. The Governor might as well have acknowledged the Indians' right to breathe the air or to enjoy the sunrise. But the treaties placed a protective property shell around what the Indians called 'their places' and 'their fishing.'

RODGER JR., *supra* note 53, at 24.

⁵⁵ United States v. Washington, 384 F. Supp. 312, 401 (W.D. Wash. 1974); *see also* Lac Courte Oreilles v. Wisconsin, 653 F. Supp. 1420, 1429 (W.D. Wis. 1987) ("Plaintiffs enjoy greater rights to hunt, fish, and gather in the ceded territory than do non-Indians.").

⁵⁶ The record is also clear on the point that the treaties were understood to guarantee rights that are permanent and not susceptible to erosion over time. Again, courts have observed:

It is absolutely clear, as Governor Stevens himself said, that neither he nor the Indians intended that the latter "should be excluded from their ancient fisheries," and it is accordingly inconceivable that either party deliberately agreed to authorize the settlers to crowd the Indians out of any meaningful use of their accustomed places to fish.

Washington v. Wash. State Commercial Passenger Fishing Vessel Ass'n, 443 U.S. 658, 676 (1979) (citation omitted).

⁵⁷ United States v. Washington, 384 F. Supp. 312, 401 (W.D. Wash. 1974). *But see* Lac Courte

recognized that both parties to the treaty and their successors have ongoing obligations regarding the health of the fishery resource. “[N]either the treaty Indians nor the state . . . may permit the subject matter of these treaties to be destroyed.”⁵⁸ Additionally, courts have clarified that these treaty-protected rights to fish cannot simply be balanced away by competing interests or otherwise “qualified by any action of the state . . . except as authorized by Congress.”⁵⁹ And, while Congress is empowered, from the perspective of the United States, to abrogate treaties, it must do so explicitly, and will not be taken to have done so implicitly.

Tribes’ unique legal and political status also finds expression in the doctrine of the federal trust responsibility.⁶⁰ This unique status is also apparent in executive commitments, including Executive Order 13,175, which requires consultation with tribes on a “government-to-government” basis whenever federal agencies’ actions significantly or uniquely affect tribal interests,⁶¹ and in EPA’s Indian Policy, which recognizes “the right of tribes as sovereign governments to self-determination.”⁶²

A tribe, importantly, is not merely a “subpopulation,” differentiated only by its members’ different susceptibilities, exposures, or vulnerabilities. No other subpopulation comprises a *people*, as that term is used in the Law of Nations.⁶³ No other subpopulation is a sovereign entity, engaged in political and cultural self-determination, with rights to and management authority over tribal lands and resources. No other subpopulation stands in a government-to-government relationship with the United States.

By sheer force of logic, if the fish to which tribes have rights are permitted to become so contaminated as to be unfit for human consumption, the treaty-guaranteed right of fishing and the concomitant right of “consuming the fruits of that . . . fishing” or “trading the fruits of that activity” are greatly compromised.⁶⁴ Yet these treaty rights have not been

Orielles, 760 F.2d at 182 (noting that a specific treaty right may be temporarily limited with respect to a given parcel of land when it passes into private ownership); *see also* *Minnesota v. Mille Lacs Band of Chippewa Indians*, 526 U.S. 172, 188 (1999) (noting the Seventh Circuit’s holding that the Chippewa retained their usufructuary rights was consistent with the decision in *Lac Courte Oreilles*).

⁵⁸ *United States v. Washington*, 520 F.2d 676, 685 (9th Cir. 1975).

⁵⁹ *United States v. Michigan*, 471 F. Supp. 192, 281 (W.D. Mich. 1979) (“[T]he right of the . . . tribes to fish in ceded waters of the Great Lakes is . . . distinct from the rights and privileges held by non-Indians and may not be qualified by any action of the state . . . except as authorized by Congress.”).

⁶⁰ *See* FELIX S. COHEN, *HANDBOOK OF FEDERAL INDIAN LAW* 226 (Rennard Strickland et al. eds., 1982) (explaining that the trust responsibility elaborates a standard of conduct for the federal government vis-à-vis American Indian tribes, imposing a duty of the “most exacting fiduciary” (citing *Seminole Nation v. U.S.*, 316 U.S. 286, 297 (1942))); *see also* O’Neill, *Mercury, Risk, and Justice*, *supra* note 22, at 11,113 (discussing the federal trust responsibility in the context of EPA’s mercury regulation).

⁶¹ *See* Exec. Order No. 13,175, 65 Fed. Reg. 67,249, 67,249–50 (Nov. 9, 2000).

⁶² Memorandum from Stephen L. Johnson to All EPA Employees (Sept. 26, 2005), *available at* <http://www.epa.gov/tribalportal/pdf/reaffirmation-indian-policy.pdf> (reaffirming EPA Indian Policy).

⁶³ *See generally* S. JAMES ANAYA, *INDIGENOUS PEOPLE IN INTERNATIONAL LAW* 19–26 (2004).

⁶⁴ A similar logic supported the district court’s finding in the second phase of *United States*

abrogated by Congress and EPA is not empowered to abrogate them of its own accord.⁶⁵ Nor can EPA simply ignore these rights or fail to notice the impact of its decisions—decisions authorizing contamination of the fish—on tribes' ability to exercise these rights.

B. Impacts to Tribes: Different in Degree, Different in Kind

American Indian tribes and their members often experience impacts from environmental contamination that are not only different in degree but also different in kind from the impacts felt by those in the general population or other subpopulations. As Dean Suagee explains:

[I]f you look closely you are bound to find impacts that affect tribal people differently from the way they affect other groups. Any activity that affects the environment has the potential to cause impacts on a tribal community that are different from impacts suffered by other communities because of the ways in which the natural world is important to tribes for cultural and religious reasons. . . . Some tribes, and some people within any given tribe, are more dependent than others on traditional cultural practices for their basic survival needs. Traditional religions have more practitioners in some tribes than in others. But for all American Indian and Alaska Native people, traditional cultural and religious practices are an important aspect of tribal identity. Impacts on culturally important biological communities or sacred places are bound to affect tribal communities differently.⁶⁶

From the perspectives of the fishing tribes, the harms of mercury contamination are many and interrelated. These harms include adverse impacts to tribal members that have physical, psychological, social, economic, cultural, spiritual, and political dimensions. The harms to human health are understood to be bound up with the harms to ecological health.

v. Washington, which interpreted the treaties guaranteeing to the fishing tribes in the Pacific Northwest the right "to take fish." *United States v. Washington*, 506 F. Supp. 187 (W.D. Wash. 1980) (Phase II), *vacated by* *United States v. Washington*, 759 F.2d 1353 (9th Cir. 1985). There, the court reasoned that "implicitly incorporated in the treaties' fishing clause is the right to have the fishery habitat protected from man-made despoliation. . . . The most fundamental prerequisite to exercising the right to take fish is the existence of fish to be taken." *Id.* at 203. While this opinion was vacated on what were essentially procedural grounds, its unassailable logic remained available to EPA in its deliberations. Since EPA's issuance of the final CAMR, note, the district court has reiterated this understanding, in the particular context of the state's duty to refrain from diminishing fish runs by constructing or maintaining culverts that block fish passage. *United States v. Washington*, No. 9213RSM, slip op. at 11 (W.D. Wash. 2007) (Subproceeding 01-01) (finding that the treaty negotiators "specifically assured the Indians that they would have access to their normal food supplies now and in the future" and that "[t]hese assurances would only be meaningful if they carried the implied promise that neither the negotiators nor their successors would take actions that would significantly degrade the resource.").

⁶⁵ See Final Brief of Petitioners Nat'l Cong. of Am. Indians and Treaty Tribes at 25, *New Jersey v. EPA*, No. 05-1097 (D.C. Cir. July 25, 2007) (quoting *George E. Warren v. EPA*, 159 F.3d 616, 624 (D.C. Cir. 1998)).

⁶⁶ Suagee, *supra* note 45, at 7.

The affront, moreover, is not only to the health of individual tribal members, but also to the well-being of the group.

For the fishing tribes of the Great Lakes, as for fishing peoples elsewhere, the lifeways associated with fish are central to their identities as peoples. For the Ojibwe peoples,⁶⁷ for example, fish, fishing, and fish consumption all function to ensure the health of their members and the existence of the fishery resource itself.⁶⁸ Indeed, the Ojibwe peoples understand themselves to have a *responsibility* to continue to fish and to consume fish in order to maintain the health of the resource and the health of the environment more generally.⁶⁹ Fishing and fish consumption are integral components of the traditional and ceremonial activities at the heart of Ojibwe culture.⁷⁰ Ojibwe peoples depend on fish for subsistence.⁷¹ Fish such as walleye are a staple food and fishers can feed their families or sell their fish as a means of securing income.⁷² Fishing and eating fish provide important occasions for the intergenerational transfer of knowledge (including ecological, historical, and social knowledge) that forms a central part of the inheritance of each succeeding generation.⁷³ Fishing and eating fish are also important to tribes' ability to exercise fully their treaty rights and engage in cultural self-determination.⁷⁴

As pointed out by tribes and other environmental justice advocates, there are numerous difficulties with the way environmental agencies evaluate and respond to environmental contamination. First and fundamentally, the narrow focus by agencies on the harms to individual

⁶⁷ The terms Ojibwe, Chippewa, and Anishinaabe are used interchangeably in this Article. See GREAT LAKES INDIAN FISH & WILDLIFE COMM'N, A GUIDE TO UNDERSTANDING OJIBWE TREATY RIGHTS (2005), available at <http://glifwc.org/publications/TreatyRights.pdf>. GLIFWC explains that "[t]here are several terms used in reference to the Ojibwe people [including] . . . the term Ojibwe and its plural form, Ojibweg The Ojibwe people often call themselves Anishinaabe (Anishinaabeg, plural) which in their language means Indian person or original people. An anglicized term for Ojibweg commonly used is Chippewa." *Id.* at 3 n.1.

⁶⁸ See, e.g., Letter from GLIFWC to EPA, *supra* note 3, at 2.

⁶⁹ *Id.*

⁷⁰ *Id.*

⁷¹ See, e.g., Bad River Band of Lake Superior Tribe of Chippewa Indians, Comments on the Proposed CAMR, *supra* note 1, at 1 (enumerating various local fish species "which make up a significant subsistence resource for the 1200 Tribal members living on the Reservation and in the surrounding area"); The Minnesota Chippewa Tribe, Letter to EPA, *supra* note 2, at 1 (observing that "some Tribal members eat fish because they are remotely located and fish is the major food source available to them. All Tribal members eat fish because it is our culture and tradition.").

⁷² See, e.g., Sue Erickson, *2004 Treaty Spearing and Netting Season Fast and Furious*, MAZINA'IGAN 1 (2004), available at <http://www.glitwc.org/publications/mazinaigan/summer2004.pdf> [hereinafter GLIFWC, *2004 Treaty Season*] (reporting that "2004 provided ample fish for tribal tables and freezers").

⁷³ *Id.*; See, e.g., Sue Erickson, *Doing It Right: A Boy, His Teachings and His Net*, MAZINA'IGAN 12-13 (2004), available at <http://www.glitwc.org/publications/mazinaigan/summer2004.pdf> (illustrating how the Ojibwe teach younger generations the tribal values associated with fishing).

⁷⁴ See generally Robert J. Miller, *Exercising Cultural Self-Determination: The Makah Indian Tribe Goes Whaling*, 25 AM. INDIAN L. REV. 165, 167 (2000-2001) (emphasizing the importance of treaty-secured fishing and whaling rights to tribal identity).

humans' physiological health is at odds with tribes' understandings of what is at stake.

Second, even within this narrowly framed inquiry, agencies' attempts to assess exposure often fail accurately to reflect the circumstances of tribes and their members, including their particular vulnerabilities. Fishing peoples consume fish at greater rates than the general population. Whereas the EPA currently recommends a default fish consumption rate for the general population of 17.5 grams per day (roughly one fish meal every two weeks),⁷⁵ contemporary consumption rates for tribal members are several times this rate. A 1993 survey of tribal spearers conducted by the Great Lakes Indian Fish and Wildlife Commission (GLIFWC), for example, found that those consuming an *average* number of walleye meals in the spring (the season of highest consumption) had intake rates ranging from 189.6 grams/day to 393.8 grams/day.⁷⁶ Further, seasonal and cultural constraints—including increased fish intake as a part of ceremonies or traditional gatherings—affect tribal consumption patterns in ways that do not affect most members of the general population.⁷⁷ The potential for acute or “bolus” doses during periods of especially high tribal consumption is a particular issue for methylmercury, given that exposure during crucial developmental windows can irreversibly damage the nervous system of a fetus or growing child.⁷⁸ Additionally, because the concentration of methylmercury present in fish tissue differs from species to species, the fact that some tribes consume highly contaminated species such as walleye, muskellunge, northern pike, and lake trout results in greater exposures. Moreover, contemporary fish consumption rates are distorted due to suppression effects. As the National Environmental Justice Advisory Council explains:

A “suppression effect” occurs when a fish consumption rate (FCR) for a given population, group, or tribe reflects a current level of consumption that is artificially diminished from an appropriate baseline level of consumption for

⁷⁵ U.S. ENVTL. PROT. AGENCY, PA, METHODOLOGY FOR DERIVING AMBIENT WATER QUALITY CRITERIA FOR THE PROTECTION OF HUMAN HEALTH 4-25 to 4-27 (2000), *available at* <http://www.epa.gov/waterscience/criteria/humanhealth/method/complete.pdf>.

⁷⁶ See Memorandum from Neil Kmiecik, Biological Services Director & Hock H. Ngu, Data Analyst, Great Lakes Indian Fish & Wildlife Comm'n, to Voight Intertribal Task Force attachment 2, at 2 (Apr. 20, 1994) [hereinafter Memorandum from Neil Kmiecik] (on file with author). The corresponding average number of walleye meals in the fall (the season of lowest consumption) ranged from 115.8 grams/day to 240.7 grams/day. *Id.* This survey produced ranges rather than point values, because it collected data in terms of meals per week and data regarding the average meal size, which it found to range from 13 to 27 ounces per meal. *Id.* at 1. Note, too, that survey respondents considered an average meal to be much greater than that assumed by EPA (generally 6 to 8 ounces). And, of course, because this survey considers only walleye consumption; tribal members' total fish intake from all species is likely greater and would suggest a higher contemporary fish consumption rate.

⁷⁷ See *id.* at 1.

⁷⁸ See Philippe Grandjean et al., *The Faroes Statement: Human Health Effects of Developmental Exposure to Chemicals in Our Environment*, 102 BASIC & CLINICAL PHARMACOLOGY & TOXICOLOGY 73 (2007), *available at* http://www.ncrlc.com/1-pfd-files/faroes_statement.pdf.

that population, group, or tribe. The more robust baseline level of consumption is suppressed, inasmuch as it does not get captured by the FCR.⁷⁹

Contemporary tribal rates are suppressed from the original, treaty-secured rates for fishing peoples. Suppression in this context is a consequence of “depletion and contamination of the fisheries, inundation of fishing places, and denial of access to aboriginal lands,” as well as years of prosecution, intimidation, and gear confiscation.⁸⁰

Third, agencies’ increasing reliance on risk avoidance rather than risk reduction in their efforts to address contamination likely burdens tribes and their members disproportionately.⁸¹ Tribal people are not only the ones who will be disproportionately affected by reliance on fish consumption advisories, but they are likely to experience differently the nature of the burden imposed when they are asked to decrease or eliminate their intake of fish. Tribes and their members may be especially troubled, for example, by the failure of risk avoidance measures to address the harms that contamination visits on non-human species, such as loons and mink, who obviously cannot read fish consumption advisories.⁸² Tribal people are also less likely to “comply” with fish consumption advisories, given the profound loss this would occasion; indeed, many in the fishing tribes may feel it is simply impossible to give up fish or alter their lifeways.⁸³ And some tribes and their members may be particularly concerned about the risks that would be introduced by following fish consumption advisories, given the role of fish in their traditional diet.⁸⁴

EPA has committed to an understanding of environmental justice that is sensitive to the particular circumstances of each affected group, including tribes and their members. Executive Order 12,898, entitled Federal Actions to Address Environmental Justice in Minority Populations and Low-Income

⁷⁹ NAT’L ENVTL. JUSTICE ADVISORY COUNCIL, FISH CONSUMPTION AND ENVIRONMENTAL JUSTICE 43 (2002), available at http://www.epa.gov/oecaerth/resources/publications/ej/nejac/fish-consump-report_1102.pdf.

⁸⁰ See generally Catherine A. O’Neill, *Protecting the Tribal Harvest: The Right to Catch and Consume Fish*, 22 J. ENVTL. L. & LITIG. 131, 135 (2007). For evidence of the role of non-Indians in undermining the exercise of tribes’ treaty rights, including through prosecution and intimidation, see, for example, JOSEPH C. DUPRIS ET AL., *THE SI’LAILO WAY: INDIANS, SALMON AND LAW ON THE COLUMBIA RIVER* (2006); Fronda Woods, *Who’s In Charge of Fishing?*, 106 OR. HIST. Q. 412 (2005), available at <http://www.historycooperative.org/journals/ohq/106.3/woods.html>.

⁸¹ See Catherine A. O’Neill, *No Mud Pies: Risk Avoidance as Risk Regulation*, 31 VT. L. REV. 273, 274 (2007) [hereinafter O’Neill, *No Mud Pies*]; Catherine A. O’Neill, *Risk Avoidance, Cultural Discrimination, and Environmental Justice for Indigenous Peoples*, 30 ECOLOGY L.Q. 1, 2–3 (2003).

⁸² See, e.g., The Minnesota Chippewa Tribe, Letter to EPA, *supra* note 2; O’Neill, *No Mud Pies*, *supra* note 81, at 307–08 (discussing problems with a narrow “myopic” approach to risk avoidance focused solely on human health effects).

⁸³ See O’Neill, *No Mud Pies*, *supra* note 81, at 312–16 (citing a recent survey by the Great Lakes Indian Fish and Wildlife Commission showing “that whereas 57% of tribal fishers were aware of mercury advisories for walleye—an important species for tribal fishers and their families—only 9% had ever refused to eat walleye in a group setting such as a feast or a ceremonial gathering”).

⁸⁴ See *id.* at 318–19.

Populations, directs EPA to address environmental justice in administering its programs.⁸⁵ This Executive Order speaks to tribes' concerns alongside, but separately from, other affected groups.⁸⁶ EPA has also requested information to allow it better to comprehend tribes' unique perspectives on environmental justice, and tribes and other environmental justice advocates, including the National Environmental Justice Advisory Council, have labored to advise EPA in this respect.

In its work on the CAMR, EPA acknowledged from the outset that tribes are chief among those affected by mercury contamination left unaddressed.⁸⁷ And, as noted above, numerous tribes and tribal associations continued to remind EPA of this fact throughout the rulemaking process by various means.⁸⁸ EPA should have been cognizant of its obligations stemming from tribes' unique legal and political status. EPA should also have been aware of the particular implications for environmental justice in the tribal context, having been educated by tribes and environmental justice advocates prior to and during the rulemaking process.

IV. EPA'S ENVIRONMENTAL JUSTICE ANALYSIS FOR THE CLEAN AIR MERCURY RULE

EPA discussed the environmental justice issues relevant to tribes and their members in the portions of the Preamble to the final CAMR that explain EPA's compliance with Executive Orders 13,175 and 12,898, which address, respectively, consultation with tribal governments and environmental justice. This discussion is supported in turn by a host of technical documents, including the Effectiveness Technical Support Document (TSD)⁸⁹ and the Regulatory Impact Analysis (RIA).⁹⁰ Specifically, the TSD and the RIA each took up some of the issues relevant to an inquiry

⁸⁵ Exec. Order No. 12,898, 59 Fed. Reg. 7,629 (Feb. 11, 1994).

⁸⁶ *Id.* at 7632.

⁸⁷ EPA, Final CAMR, *supra* note 6, at 28,641.

⁸⁸ See, e.g., The Minnesota Chippewa Tribe, Letter to EPA, *supra* note 2.

⁸⁹ EPA, CAMR EFFECTIVENESS TSD, *supra* note 39, at 50–53 (demonstrating that subsistence fishers are exposed to methylmercury at higher levels than recreational anglers). Note that, in the course of reconsidering the CAMR, EPA varied some of the assumptions in its revised Effectiveness TSDs relevant to its analysis of the human health impacts to tribal members. See U.S. ENVTL. PROT. AGENCY, RESPONSE TO SIGNIFICANT PUBLIC COMMENTS RECEIVED IN RESPONSE TO: REVISION OF DECEMBER 2000 REGULATORY FINDING ON THE EMISSIONS OF HAZARDOUS AIR POLLUTANTS FROM ELECTRIC UTILITY STEAM GENERATING UNITS AND THE REMOVAL OF COAL- AND OIL- FIRED ELECTRIC STEAM GENERATING UNITS FROM THE SECTION 112(C) LIST AND STANDARDS OF PERFORMANCE FOR NEW AND EXISTING STATIONARY SOURCES: ELECTRIC UTILITY STEAM GENERATING UNITS 70–77 (2006), available at http://www.epa.gov/ttn/atw/utility/final_com_resp_053106.pdf [hereinafter RESPONSE TO SIGNIFICANT PUBLIC COMMENTS]. The methods and conclusions, however, are essentially the same, and the discussion herein relies on the original analysis contained in the revised Effectiveness TSD, given that this is the analysis on which EPA appeared to rely in its discussion of its compliance with Executive Order 12,898 in the Final CAMR.

⁹⁰ OFFICE OF AIR QUALITY PLANNING AND STANDARDS, U.S. ENVTL. PROT. AGENCY, REGULATORY IMPACT ANALYSIS OF THE CLEAN AIR MERCURY RULE FINAL REPORT (2005), available at http://www.epa.gov/ttn/atw/utility/ria_final.pdf [hereinafter EPA, CAMR RIA].

into the disproportionate burdens of mercury contamination, although each employed quite different methods and assumptions.

The TSD described EPA's methods for estimating the effect of CAMR on human health. To this end, the TSD considered the portion of various populations that would be left exposed to unsafe levels of methylmercury under CAMR in 2020 (after accounting for the implementation of CAIR), due to utility-attributable emissions alone. In its TSD, EPA constructed an "index of daily intake (IDI)" to account for the "incremental exposure" due solely to coal-fired utilities. As EPA explained, "[t]he IDI is defined so that an IDI of 1 is equal to an incremental exposure equal to the RfD level."⁹¹ EPA then considered whether those consuming fish at levels representative of the general population or of Native American populations would be left exposed above this IDI, assuming varying degrees of methylmercury contamination in the fish species consumed.

The RIA comprised EPA's assessment of the costs and benefits of the CAMR. Specifically, the RIA attempted to quantify the "benefits" of the CAMR in terms of the change in IQ decrements suffered by humans exposed *in utero* to mercury in recreationally caught freshwater fish from U.S. waters that EPA deemed attributable solely to utility emissions (after accounting for the implementation of CAIR).⁹² EPA tallied these benefits by estimating the present value of the lifetime loss in earnings attributable to each point decrease in IQ, less the amount saved in educational costs avoided for each point decrease in IQ. By this method, EPA arrived at a value for each IQ point lost of \$8807.⁹³ EPA applied this method to the general population, as well as to "potentially high risk subpopulations," including one represented by a case study of Chippewa in Minnesota, Wisconsin and Michigan.⁹⁴ EPA also conducted a "sensitivity analysis," in which it employed higher fish consumption rates to characterize the exposure for this group.⁹⁵

EPA found that Native Americans are among those disproportionately impacted by mercury contamination, but offered, somewhat vaguely, that "[t]he CAMR is expected to reduce exposures to these populations."⁹⁶ Although EPA never reconciled the different approaches and assumptions in its TSD and RIA, it referenced the latter in support of this conclusion. Thus,

⁹¹ EPA, CAMR EFFECTIVENESS TSD, *supra* note 39, at 44.

⁹² EPA, Final CAMR, *supra* note 6, at 28,641. Note that EPA allowed, additionally, that the controls installed to reduce mercury under the CAMR could be expected to result in a slight reduction in emissions of fine particulate matter (PM_{2.5}), saving up to seven lives annually, for monetized benefits of \$1.4 million to \$40 million per year. EPA, CAMR RIA, *supra* note 90, at 12-1, 12-7 to 12-8.

⁹³ EPA, CAMR RIA, *supra* note 90, at 10-46 to 10-47 (in 1999 dollars, assuming a 3% discount rate; if one were to use a 7% discount rate, the figure would be \$1580 per IQ point). Note that EPA assumed that these benefits would not accrue until 10 to 20 years after the year 2020, given the lag in time that it estimated between the mercury emissions reductions required by CAMR and the expected environmental response, namely the reduction in fish tissue methylmercury (EPA also offered alternative scenarios considering lags as short as 5 years and as long as 50 years). *Id.* at tbl.10-28.

⁹⁴ EPA, CAMR RIA, *supra* note 90, at 10-104.

⁹⁵ *Id.* at 10-130.

⁹⁶ EPA, Final CAMR, *supra* note 6, at 28,648.

EPA explained, it determined that the group represented by its case study of Chippewa in Minnesota, Wisconsin and Michigan would accrue total benefits of \$6300 to \$6700 due to the CAMR.⁹⁷ EPA elaborated that, even under the assumptions employed in its sensitivity analysis, “Native American subsistence populations (and other high fish consuming populations) might experience relatively larger health benefits from the final rule compared with general recreational angler [sic], [although] the absolute degree of health benefits involved are relatively low (i.e., less than a 1.0 IQ point change per fisher for any of the locations modeled).”⁹⁸ Thus, EPA concluded, Native people would not be “disproportionately benefited” by the CAMR.⁹⁹

EPA’s environmental justice analysis is distressing in several respects. First, EPA appears to have ignored the fact that tribes’ treaty-secured rights to fish are impacted, effectively viewing tribes as simply another highly exposed subpopulation. Second, EPA misframed the inquiry at the heart of its disproportionate impacts analysis, suggesting that the real environmental justice issue was whether tribes and their members were disproportionately benefited by the CAMR. Third, when EPA actually attempted to consider the impacts on tribal members’ health, it misrepresented the nature and extent of the disproportionate burdens to fishing peoples. Fourth, EPA declined even to engage the issues raised by the substantial delay in emissions reductions afforded under the CAMR. Finally, EPA neglected, throughout its analysis, to comprehend the ways in which the impacts of mercury contamination on tribes and their members are different and, often, unique.

A. EPA Treated Tribes as Just Another Highly Exposed “Subpopulation”

EPA’s analysis of the CAMR appears oblivious to the fact that tribes’ fishing rights are at stake. Indeed, it is unclear how or even whether EPA viewed its analysis as engaging the matter of the tribes’ legally protected rights to fish. Notably, the word “treaty” appears nowhere in the Preamble to the final CAMR, nor in any of the technical documents supporting the final rule, including the TSD and RIA.¹⁰⁰ Further, by the time it litigated *New*

⁹⁷ *Id.* EPA used similar methods to derive figures for “a case study of the Hmong (a Southeast Asian-American population) in Minnesota and Wisconsin,” arriving at total benefits of \$3300 to \$3500. *Id.*

⁹⁸ *Id.*

⁹⁹ *Id.* EPA stated that “[t]his sensitivity analysis also provided coverage for the Hmong population modeled for the RIA, and the conclusions cited above regarding relatively low IQ changes (less than 1.0) can also be applied to this high fish consuming population.” *Id.*

¹⁰⁰ In fact, as the tribes pointed out, the word “treaty” appears only once in the entire corpus of EPA’s decision documents, in the Response to Significant Comments. Final Brief of Petitioners Nat’l Cong. of Am. Indians and Treaty Tribes, *supra* note 65, at 28, *New Jersey v. EPA*, No. 05-1097 (D.C. Cir. July 25, 2007). Even here, EPA’s response is dismissive; it defends the CAMR’s meager emissions reductions as, essentially, better for tribes’ legally protected rights to fish than the current unregulated levels of emissions. U.S. Env’tl. Prot. Agency, Response to Significant Comments on the Proposed Clean Air Mercury Rule (Mar. 15, 2005), available at http://www.epa.gov/ttn/atw/utility/sec_111_respcom_oar-2002-0056-6206.pdf.

Jersey v. EPA, EPA showed itself to be openly hostile to tribes' treaty-secured rights, as it willfully mischaracterized their source and import.

As noted above, EPA recognized early on, in its Preamble to the proposed rule, that "Native Americans . . . may rely on fish as a primary source of nutrition and/or for cultural practices."¹⁰¹ EPA was also expressly reminded during the public comment period of the fact that tribes' treaty-protected fishing rights were impacted by the mercury rule. EPA was made aware that mercury contamination threatens the tribes' treaty fisheries in several ways.¹⁰² It impairs various physiological functions in the fish and inhibits their ability to reproduce, ultimately causing depletion of the fisheries resource. It inflicts harm directly on tribal members who consume—or whose mothers consumed¹⁰³—fish, in the form of neurological and cardiovascular damage. And it renders the fish less saleable, thereby impairing the tribes' treaty-protected rights to earn "a moderate living" by fishing. Although the TSD and the RIA at least offered estimates of the impact of mercury contamination on tribal members' health—albeit inaccurate and conflicting estimates—neither said anything of the other dimensions of the treaty-protected rights that are threatened by mercury contamination. EPA nowhere grappled with the matter of the legal protections afforded to tribal fishing rights.

EPA thus made a fundamental error: it treated tribes and their members as if they were simply another highly-exposed subpopulation. EPA limited its consideration of the relevant impacts to effects on tribal members' physiological health, narrowly understood. As noted above, EPA's TSD provided various estimates of the numbers of Native people who, considering utilities' emissions alone, would be left unprotected by the CAMR, under various assumptions about their level of fish intake and the extent of methylmercury contamination in the species they consumed. EPA's RIA attempted an analysis of "potentially high risk subpopulations" and a sensitivity analysis that employed fish consumption rates purportedly representative of contemporary tribal consumption practices. But in both the TSD and the RIA, EPA accounted for only one facet of tribes' rights and interests. And, in neither the TSD nor the RIA did EPA explain how its grave conclusions respecting tribal members' health could be reconciled with the treaty protections.

¹⁰¹ EPA, Proposed Mercury Rule, *supra* note 5, 69 Fed. Reg. at 4709.

¹⁰² Final Brief of Petitioners Nat'l Cong. of Am. Indians and Treaty Tribes, *supra* note 65, at 21–22, *New Jersey v. EPA*, No. 05-1097 (citing evidence in the CAMR rulemaking docket for the various dimensions along which mercury contamination impairs tribes' treaty rights).

¹⁰³ Methylmercury has a half-life in the human body of approximately 70–80 days, with considerable variability; thus, a woman whose methylmercury levels are elevated prior to conceiving but who ceases consumption of contaminated fish once she learns she is pregnant may still expose the developing fetus to unsafe levels of methylmercury that has not yet been cleared from her system. NRC, METHYLMERCURY, *supra* note 11, at 50, 58–59. It is for this reason that fish consumption advisories for mercury are directed to women of childbearing age, not exclusively women who are pregnant. Note, too, that human breast milk is considered a route of methylmercury excretion, such that women who nurse their children also risk exposing them via this route. *Id.* at 50. Again, consumption advisories reflect this fact.

Working within this narrow framework, EPA declined even to register crucial qualifications stemming from tribes' particular historical and legal circumstances. Importantly, EPA failed to engage the matter of "suppression effects," brought to its attention in comments by the tribes and others. Recall that a "suppression effect" in this context speaks to the fact that surveys of contemporary consumption are likely to reflect consumption rates that are suppressed, relative to the original, treaty-guaranteed rates of fishing peoples.¹⁰⁴ As noted above, such suppression effects are largely a consequence of actions sanctioned explicitly or implicitly by non-Indian governments that have resulted in depletion and contamination of the fisheries, and denial of access to traditional gathering and fishing places. Thus, rates that describe historic, unsuppressed fish consumption levels are necessary to understanding consumption consonant with treaty protections. To conduct an analysis based on contemporary, suppressed rates is effectively to limit tribes' practices in a manner that undermines their treaty-secured rights.¹⁰⁵

EPA's poor understanding of tribes' rights and circumstances was evident throughout its analysis. While EPA never did reconcile the different approaches in its TSD and RIA on the matter of tribal exposure, EPA disposed of the matter in its TSD with the expedient of a "visual inspection" of a map combining tribal census tracts and modeled mercury deposition.¹⁰⁶ That is, after acknowledging the substantial percentage—fully 45%—of the Native American population who would be exposed to unsafe levels of utility-attributable mercury under CAMR (assuming fish tissue methylmercury concentrations at the 99th percentile), EPA determined that there was little reason for concern, because, by its reckoning, Native people do not live in places where there will be much deposition due to utilities.¹⁰⁷ This position required EPA to maintain that few Native people live in such places as Michigan.¹⁰⁸ This claim is absurd, as the tribes pointed out in

¹⁰⁴ See *supra* text accompanying note 79.

¹⁰⁵ Although, to be sure, there are issues to be addressed in determining these historic fish consumption rates, several tribes are well along in this process, and EPA could profitably have consulted with these tribes on this important issue for treaty rights. See, e.g., STUART G. HARRIS & BARBARA L. HARPER, CONFEDERATED TRIBES OF THE UMATILLA INDIAN RESERVATION, EXPOSURE SCENARIO FOR CTUIR TRADITIONAL SUBSISTENCE LIFEWAYS 4 (2004), available at <http://www.hhs.oregonstate.edu/ph/tribal-grant/CTUIR-Scenario.doc> [hereinafter HARRIS & HARPER]. Notably, courts conversant with tribes' treaty fishing rights have long relied on evidence to this effect. See *United States v. Washington*, 384 F. Supp. 312, 380 (W.D. Dist. 1974) (stating that Western Washington tribal members historically consumed about 500 pounds per year (or 620 grams per day) per capita of salmon alone, supplemented by other types of fish and shellfish, as well as other foods).

¹⁰⁶ EPA, CAMR EFFECTIVENESS TSD, *supra* note 39, at 51.

¹⁰⁷ *Id.* See discussion *infra* note 137 and accompanying text.

¹⁰⁸ According to EPA's maps, areas throughout Michigan would continue to experience deposition due to utilities' emissions under CAMR. EPA, CAMR EFFECTIVENESS TSD, *supra* note 39, at 52; Final Brief for Petitioners Nat'l Cong. of Am. Indians and Treaty Tribes, *supra* note 65, at 41, *New Jersey v. EPA*, No. 05-1097 (D.C. Cir. July 25, 2007). Note, too, that EPA's method here may fail to account for more localized deposition "hot spots" throughout areas in Michigan and elsewhere in which tribes retained rights to fish. See O'Neill, *Mercury, Risk, and Justice*, *supra* note 22, at 11,098.

litigation, given the fact that Michigan is home to twelve federally recognized tribes and some 124,412 Native Americans.¹⁰⁹ Additionally, a large portion of Michigan's inland waters and adjacent Great Lakes are subject to treaties, which have been recognized by courts as securing to the tribes the right to catch and consume fish.

Indeed, EPA appears to have remained confused about the nature of mercury contamination's effects on tribal rights and about its own obligations as a consequence throughout the rulemaking and into litigation. In its brief in *New Jersey v. EPA*, EPA began its discussion of the treaties with the blatant and offensive mischaracterization of the tribes' fishing rights as having been "*granted* to numerous Tribes through treaties," rather than having been reserved by the tribes.¹¹⁰ EPA went on to claim that the tribes' treaty-protected rights secure for them no different protections than enjoyed by U.S. citizens generally—again, a misstatement of the law.¹¹¹ EPA also sought to cast the tribes' treaty-based claims as relevant mainly to mercury's impact on ecological health (which, in EPA's view, was not at issue in the CAMR).¹¹² Ultimately, EPA attempted to portray the treaty protections as unrecognized or uncertain.¹¹³

To its credit, EPA's discussion of its obligations under Executive Order 13,175 reflects an understanding of tribes' status as sovereign governments. Specifically, EPA evidences an appreciation for tribes' unique legal and political status for their role as one of three sovereigns with responsibilities for environmental management within our tri-partite system of government.¹¹⁴ As such, EPA can be viewed here as affirming tribes' inherent rights to and management authority over tribal resources.¹¹⁵ However, having observed that no tribe has yet sought to administer the relevant programs under the Clean Air Act, EPA concluded that the CAMR "does not have 'Tribal implications' as specified in EO 13,175 because it does not have a substantial or direct effect on one or more Indian Tribes."¹¹⁶ EPA's crabbed interpretation allows for tribes' potential role as permitting authorities, in accordance with its Tribal Authority Rule, but declines to acknowledge other facets of tribes' rights and interests. EPA's contention that the CAMR does not substantially or directly affect tribes is unsupportable, and demonstrates a complete failure on the part of EPA to comprehend the

¹⁰⁹ Final Brief for Petitioners Nat'l Cong. of Am. Indians and Treaty Tribes, *supra* note 65, at 41, *New Jersey v. EPA*, No. 05-1097 (citing 2000 census data).

¹¹⁰ Initial Brief for Respondent U.S. Env'tl. Prot. Agency at 86, *New Jersey v. EPA*, No. 05-1097 (May 4, 2007) (emphasis added). This characterization is obviously at odds with the U.S. Supreme Court's finding in *United States v. Winans*. See *supra* note 54 and accompanying text.

¹¹¹ Initial Brief for Respondent U.S. Env'tl. Prot. Agency, *supra* note 110, at 86, *New Jersey v. EPA*, No. 05-1097.

¹¹² *Id.* at 86–98.

¹¹³ *Id.*

¹¹⁴ See, e.g., Suagee, *supra* note 45, at 2.

¹¹⁵ But cf. Darren J. Ranco, Anthropological Ass'n Meetings, Panel: Beyond TEK and Environmental Science: Indian Nations and the Politics of Knowledge in Protecting Cultural Resources 5–14 (Dec. 18, 2004) (discussing with example the limitations on tribal rights and management under the EPA) (on file with author).

¹¹⁶ EPA, Final CAMR, *supra* note 6, at 28,645.

nature of tribes' treaty-secured rights to fish. Additionally, EPA's claim that it had "consulted with Tribal officials in developing the final rule" is demonstrably false, if consultation is understood in any meaningful way.¹¹⁷

B. EPA Played Games with the Concern for Disproportionate Impacts

EPA reframed the relevant inquiry to suggest that the real concern for environmental justice was whether Native people were disproportionately *benefited* by the mercury rule. Thus, EPA flatly refused to consider whether a more stringent rule would better address the disproportionate burdens it had identified. Worse, EPA cavalierly expressed concern that its lenient rule might go too far to ameliorate the harms suffered by tribes and their members and so raise issues of distributional equity.

In the Preamble to the final CAMR, EPA recognized that, in the absence of regulation, certain groups, including "low-income and minority populations" will disproportionately suffer adverse health effects, given their fish consumption practices.¹¹⁸ EPA further acknowledged that these practices may have "economic, cultural, and religious" dimensions.¹¹⁹ EPA noted that Executive Order 12,898 requires it to "assess whether minority or low-income populations face risks or a rate of exposure to hazards that are significant and that 'appreciably exceed or is likely to appreciably exceed the risk or rate to the general population . . .'"¹²⁰ EPA then stated that, "[i]n accordance with EO 12898, the Agency has considered whether the final rule may have disproportionate negative impacts on minority or low-income populations."¹²¹ EPA concluded that "[t]he Agency expects the final rule to lead to beneficial reductions in air pollution and exposures generally with a small negative impact through increased utility bills."¹²² Thus, EPA's first step was to reframe the question. Rather than consider whether the CAMR goes far enough to reduce minority and low-income populations' exposures to mercury that EPA concedes "appreciably exceed" those of the general population, EPA pointed out that the CAMR does *something*. By assuming an unregulated baseline, EPA was able to claim that these highly exposed populations are better off with the CAMR.

EPA then turned the disproportionate impacts analysis inside-out. In fact, continued EPA, the real issue was whether the CAMR makes these populations too much better off.¹²³ "To further examine whether high fish-

¹¹⁷ *Id.*; O'Neill, *Mercury, Risk, and Justice*, *supra* note 22, at 11,114 (describing EPA's disappointing attention to its obligations to consult with tribes on a government-to-government basis); *see also* The Minnesota Chippewa Tribe, Letter to EPA, *supra* note 2 (outlining how the tribe's input was completely disregarded in mercury regulations).

¹¹⁸ EPA, Final CAMR, *supra* note 6, at 28,648.

¹¹⁹ *Id.*

¹²⁰ *Id.*

¹²¹ *Id.*

¹²² *Id.* EPA's attention to the potential burdens of increased utility bills on those who might ill afford such increases, note, is perhaps the only laudable aspect of its environmental justice analysis of the CAMR.

¹²³ It seems that EPA is not alone in being convinced that this is the *real* distributive justice

consuming (subsistence) populations might be *disproportionately benefited* by the final rule (i.e., whether distributional equity is a consideration) . . . EPA conducted a sensitivity analysis [using fish consumption rates for Ojibwe in the Great Lakes region] focusing specifically on the distributional equity issue.”¹²⁴ To its apparent relief, EPA’s environmental justice analysis revealed that “although Native American subsistence populations (and other high fish consuming populations) might experience relatively larger health benefits from the final rule compared with general recreational anglers, the absolute degree of health benefits [in terms of IQ decrements] are [sic] relatively low.”¹²⁵

EPA’s reframing of the inquiry required under Executive Order 12,898 makes a mockery of the concern for disproportionate burdens that is a hallmark of environmental justice analysis. It displays a callousness to the impacts on real people—impacts on human well-being with aspects both practical and profound, given the “economic, cultural, and religious” significance of fish that even EPA acknowledges. It also reveals EPA’s unwillingness to engage the real environmental justice question. Could more immediate and meaningful regulation of utilities’ mercury emissions alleviate the disproportionately high exposures and the losses these entail?

EPA might defend its inquiry by arguing that the distributive consequences of a given regulation are, in fact, relevant to an understanding of environmental justice. That is to say, agencies ought to identify, for each decision, to whom the benefits will accrue and on whom the burdens will fall. This claim has appeal, at least in the abstract. But, once contextualized, this approach becomes objectionable and, indeed, unuseful if one is concerned with environmental justice in the real world. Crucially, this approach redefines the relevant baseline: it ignores the current maldistribution of environmental benefits and burdens and erases the long history of efforts to colonize and assimilate Native peoples. If pursued seriously, such an inquiry would always disqualify efforts to make progress toward environmental justice by ameliorating disproportionate burdens.

C. EPA Misrepresented the Disproportionate Burden to Native People

Despite having emphasized its concern that Native people not be disproportionately benefited by the rule, EPA did make a limited attempt to assess the different impacts to human health experienced by highly exposed groups, including Native peoples. Thus, in both the TSD and the RIA, EPA offered alternative scenarios in which it accounted for fishing tribes’ greater exposure to methylmercury. These efforts, however, are hobbled in numerous respects—many of which repeat infirmities brought to EPA’s

issue in environmental policy. See, e.g., Matthew E. Kahn, *The Beneficiaries of Clean Air Act Regulation*, 24 REG. 34, 37 (2001), at 34, 34 (“What we find is that better educated, wealthier populations do experience cleaner air, but that poorer, less educated populations have experienced a greater overall improvement in air quality between 1980 and 1998.”).

¹²⁴ EPA, Final CAMR, *supra* note 6, at 28,648 (emphasis added).

¹²⁵ *Id.*

attention in the past by tribes and other environmental justice advocates.¹²⁶ Among other things, EPA employed assumptions about tribal practices that grossly underestimate actual, contemporary exposures. As well, EPA dismissed or mischaracterized data supplied by tribes and others that would have permitted it to depict more accurately these tribal exposures. And EPA declined to assess the risks of exposure to mercury in context, in a way that would account for tribal members' particular vulnerabilities and real-world experiences of these risks. In the end, EPA employed an array of devices to downplay the harms to tribal members, enabling it to conclude that there was little to be gained by regulating utilities' mercury emissions.

1. The Technical Support Document

In its TSD, EPA assembled tables that permit one to determine the levels of utility-attributable methylmercury to which those in the general population and in Native American populations are exposed, assuming various degrees of contamination in the fish species consumed.¹²⁷ These tables usefully reveal just how high a percentage of the Native American population would be left exposed at levels above EPA's RfD under CAMR in 2020, due to utility-attributable mercury emissions alone, which, recall, EPA expressed in terms of an IDI. Assuming fish tissue methylmercury concentrations at the 99th percentile, an extraordinary portion—some 45%—of those consuming at contemporary tribal consumption rates would be left exposed to methylmercury levels above EPA's threshold.¹²⁸ This remarkable number presents a grave picture, in absolute terms, of the potential impacts to tribal members' health left unaddressed by the CAMR. Moreover, in comparative terms, the picture is similarly stark. Whereas all those consuming fish at rates above the 55th percentile in the Native American population will be left exposed to utility-attributable methylmercury at levels above EPA's RfD, only those consuming fish at rates above the 99th percentile in the general population of recreational anglers will be similarly exposed to utility-attributable methylmercury at levels above EPA's RfD.¹²⁹ Put another way, whereas those consuming the most contaminated species and at the highest rates in the Native American

¹²⁶ COLUMBIA RIVER INTER-TRIBAL FISH COMM'N, COMMENTS TO ADMINISTRATOR BROWNER ON THE DRAFT REVISIONS TO THE METHODOLOGY FOR DERIVING AMBIENT WATER QUALITY CRITERIA FOR THE PROTECTION OF HUMAN HEALTH 8 (1999); NAT'L ENVTL. JUSTICE ADVISORY COUNCIL (NEJAC), FISH CONSUMPTION AND ENVIRONMENTAL JUSTICE 21–49 (2002), available at http://www.epa.gov/compliance/resources/publications/ej/nejac/fish-consumption-report_1102.pdf [hereinafter NEJAC, FISH CONSUMPTION REPORT] (describing problems and strategies to address EPA's research methods and risk assessment approaches in underestimating risk to Native peoples).

¹²⁷ EPA, CAMR EFFECTIVENESS TSD, *supra* note 39, at 46–54, tbls.6.1, 6.3 & 6.4.

¹²⁸ *Id.* at 51, tbl.6.3. These values assume a scenario of highly contaminated fish, i.e., methylmercury contamination held at 99th percentile—a reasonable assumption for many tribal fishers and their families, given that the species traditionally consumed are highly contaminated (e.g., walleye, pike, and others, for the Great Lakes tribes). On these assumptions, the IDI will be at or greater than 1 for all those consuming at or above the 55th percentile for this population. *Id.*

¹²⁹ *Id.* at 46–51, tbls.6.1, 6.3.

population will be left exposed at levels well above the EPA's RfD—these people will experience an IDI of 6.43—those consuming comparable species and at comparably high rates in the general population of recreational anglers (because of lower levels of consumption compared to tribal subsistence fishers) will be exposed to levels just at EPA's RfD—these people will experience an IDI of 1.03.¹³⁰ Thus, even on EPA's own assumptions (which, as elaborated below, are likely to understate Native people's actual exposures) the harms that remain unaddressed by the CAMR are serious in absolute terms—crucially, given the threshold nature of the pollutant at issue, above the level deemed safe by EPA.¹³¹ And the harms that remain unaddressed by the CAMR are disproportionate in comparative terms.

As bleak as these figures are, EPA's TSD likely fails to capture the true extent of the disproportionate burden. First, EPA's analysis employed a fish consumption rate that mischaracterizes actual, contemporary consumption practices (let alone treaty-based consumption practices).¹³² In the TSD, EPA assumed a mean fish consumption rate for subsistence Native Americans of 60 grams/day, and a 95th percentile rate of 170 grams/day.¹³³ Compare this to the rates evidenced by the GLIFWC survey, which found those consuming an *average* number of walleye meals in the spring (the season of highest consumption) had intake rates ranging from 189.6 grams/day to 393.8 grams/day.¹³⁴ Second, EPA's analysis glossed over the matter of real-world exposures for tribal people. As noted above, EPA constructed an "index of daily intake (IDI)" to account for the "incremental exposure" due solely to coal-fired utilities.¹³⁵ As EPA explained:

[t]he IDI is defined so that an IDI of 1 is equal to an incremental exposure equal to the RfD level, recognizing that the RfD is an absolute level, while the IDI is based on incremental exposure *without regard to absolute levels. Note that an*

¹³⁰ *Id.*

¹³¹ When pressed on this point during the reconsideration process, EPA fell back on the somewhat disingenuous (and decidedly unreassuring) claim that its RfD really does not amount to a "bright line," above which adverse effects are certain to occur, so that even IDI values for Native people that are 6 to 8 times that of the RfD (again, considering only utilities' emissions) ought not be a source of concern. RESPONSE TO SIGNIFICANT PUBLIC COMMENTS, *supra* note 89, at 77 (citing IDI values recalculated from the original IDI values in the Effectiveness TSD).

¹³² Additionally, surveys purporting to capture even contemporary tribal consumption rates often use methods and conventions appropriate to the general population but inappropriate to the tribal context. *See, e.g.,* HARRIS & HARPER, *supra* note 105, app. 3 at 5–15; Stuart G. Harris & Barbara L. Harper, *A Native American Exposure Scenario*, 17 RISK ANALYSIS 789, 792 (1997); Jamie Donatuto, Environmental Specialist, Swinomish Indian Tribal Community Office of Planning and Community Development, "Risk Assessment in the Tribal Context," Presentation to EPA X Workshop, Seattle, WA (Sept. 27, 2007).

¹³³ EPA, CAMR EFFECTIVENESS TSD, *supra* note 39, at 54, tbl.6.4.

¹³⁴ Memorandum from Neil Kmiecik, *supra* note 76 and accompanying text.

¹³⁵ This is an assumption that, to be fair, produced information relevant to the rulemaking—although EPA should have connected its inquiry to the relevant factors per CAA § 112(c)(9), which would, it should be noted, have entailed a broader understanding of the statutorily relevant impacts.

*IDI value of 1 would represent an absolute exposure greater than the RfD when background exposures are considered.*¹³⁶

EPA never situated its findings respecting the incremental exposures represented by the IDI in terms of the corresponding absolute exposures, and the consequences for human health. Because it neglects other sources of exposure to mercury, EPA's statement in the Preamble to the final rule to the effect that the mercury emissions from utilities remaining prior to the imposition of the CAMR posed no real public health threat was at the very least misleading.¹³⁷ Finally, it is unclear what relationship EPA intended between this analysis in its TSD and the analyses it undertook in its RIA, given that the assumptions underlying each do not match. This point goes to the transparency and accessibility of EPA's deliberations, a concern especially for those most affected.

EPA's only attempt to grapple with the implications of its TSD is crude and unavailing. As noted above, when faced with its data suggesting that some forty-five percent of the Native population will be left exposed to unsafe levels of methylmercury, EPA claimed that "[v]isual inspection [of maps correlating modeled deposition with tribal census tracts] shows very few locations where Native Americans live where there is also a high residual deposition due to utilities."¹³⁸ It is appropriate to recognize, as EPA did, the complex chain connecting mercury emissions to human exposure via ingestion of contaminated fish; indeed, environmental justice advocates have often urged greater attention to the individualized or place-based nature of exposure assessment. It is also fair to acknowledge the gaps in the data before EPA at the time. Nonetheless, EPA relied on a crude tool to dispose entirely of a central question for environmental justice. The large opportunities for error with so coarse a method were in fact borne out when, as noted above, it required EPA to maintain that Native Americans do not live in significant numbers in places such as Michigan. EPA's method here brings up a related point: if EPA had wanted to delve further into the complexities of Native people's actual exposures, it should have sought the expertise of those affected. That is, rather than making do with rough proxies and visual inspections, it should have consulted with the tribes, many of whom had long been gathering data regarding tribal demographics; tribal members' consumption practices (including unique seasonal and ceremonial consumption practices); local fish tissue methylmercury concentrations; and the like.

2. The Regulatory Impact Assessment

In the RIA, EPA sought to quantify the costs and benefits of the CAMR, and it is this analysis that supports EPA's discussion of Executive Order 12,898. As described above, EPA calculated the benefits of CAMR entirely in

¹³⁶ EPA, CAMR EFFECTIVENESS TSD, *supra* note 39, at 44 (emphasis added).

¹³⁷ EPA, Final CAMR, *supra* note 6, at 28,606, 28,609 ("[W]e believe that after implementation of CAIR, remaining utility emissions will not pose hazards to public health . . .").

¹³⁸ EPA, CAMR EFFECTIVENESS TSD, *supra* note 39, at 51.

terms of the change in IQ decrements suffered by humans exposed *in utero* to mercury from recreationally caught freshwater fish from U.S. waters that EPA deemed attributable solely to utility emissions, after accounting for the implementation of CAIR.¹³⁹ EPA tallied these benefits by estimating the present value of the lifetime loss in earnings attributable to each point decrease in IQ, less the amount saved in educational costs avoided for each point decrease in IQ. By this method, and assuming the present value of an IQ point decrement is \$8807, EPA concluded that the incremental benefits of the CAMR for the general population recreational angler were between \$1,700,000 and \$3,000,000.¹⁴⁰ As noted above, EPA concluded that the incremental benefits of the case study population of Chippewa in Minnesota, Wisconsin, and Michigan were between \$6300 and \$6700.¹⁴¹ EPA also offered a sensitivity analysis, by which means it considered issues of “distributional equity.”¹⁴² Here, EPA concluded that, even under “the most conservative scenario” evaluated for Native American subsistence populations, the CAMR “only produced a[n] IQ change of 0.61 points.”¹⁴³ By comparison, for the general population recreational angler, the CAMR was predicted to result in a mean IQ change of 0.010 points.¹⁴⁴ As EPA observes, this is a difference of “over an order of magnitude.”¹⁴⁵

EPA’s RIA, like its TSD, likely fails to capture the true extent of the burden of mercury contamination, and thus understates the benefits of mercury regulation. First, EPA’s analysis again employed a fish consumption rate that mischaracterizes actual, contemporary consumption practices (let alone treaty-based consumption practices). In the RIA, EPA assumed a mean fish consumption rate for Chippewa populations of 20 grams/day for the analysis of “potentially high-risk subpopulations” conducted as part of its primary benefits analysis.¹⁴⁶ This number grossly underestimates contemporary tribal exposures. Second, EPA misrepresented the data submitted to it by tribal and other commenters. In its sensitivity analysis, EPA assumed a fish consumption rate of 393.8 grams/day, which, it suggested, may be near a maximum value or near a 95th percentile value for Chippewa populations.¹⁴⁷ This number, EPA noted, was derived from comments submitted in response to EPA’s Notice of Data Availability

¹³⁹ See *supra* notes 92–93 and accompanying text.

¹⁴⁰ EPA, CAMR RIA, *supra* note 90, at 10-10, tbl.10-1(c) (comparing CAMR Option 1 relative to 2020 Base Case with CAIR, assuming a 3% discount rate; the range represents, respectively, values associated with assumptions of a 20- and 10-year lag).

¹⁴¹ EPA, Final CAMR, *supra* note 6, at 28,648; see also EPA, CAMR RIA, *supra* note 90, at 10-10, tbl.10-1(c) (comparing CAMR Option 1 relative to 2020 Base Case with CAIR, assuming a 3% discount rate; the range represents, respectively, values associated with assumptions of a 20- and 10-year lag and is here summarized as approximately \$7000).

¹⁴² EPA, CAMR RIA, *supra* note 90, at 10-131. See generally *id.* at 10-130 to 10-135 (examining the economic benefit equity issue in the context of high fish consuming populations).

¹⁴³ *Id.* at 10-134.

¹⁴⁴ *Id.* at 10-134 n.29.

¹⁴⁵ *Id.*

¹⁴⁶ *Id.* at 10-113, 10-123.

¹⁴⁷ *Id.* at 10-132.

(NODA) for the CAMR.¹⁴⁸ Specifically, EPA reported, the comments identified a range of consumption rates for the spring and fall spearing seasons. However, what EPA portrayed as a maximum or 95th percentile value from the relevant study had in fact been presented to EPA as a range of *average* or mean values.¹⁴⁹ As a consequence, while EPA characterized its sensitivity analysis as reflecting an unrealistic, conservative, and “near bounding” picture of exposure, it in fact reflected a scenario that comes closer to fishing peoples’ actual average exposures.¹⁵⁰

Finally, and more fundamentally, although EPA appeared to base its environmental justice analysis primarily on its RIA, the RIA’s vehicle for assessment—a cost-benefit analysis (CBA)—is ill-suited for illuminating the relevant issues. CBA is a decisional tool that entails monetizing the costs and benefits of a particular regulatory option. CBA is designed to enable agencies to consider the disparate positive and negative consequences of a regulatory decision in terms of a unitary metric—dollars—and thereby to weigh the aggregate benefits against the costs. Scholars of regulatory analysis have pointed to CBA’s many deficiencies, in theory and in practice, and I will not try to encapsulate the critique here.¹⁵¹ However, one can readily appreciate some of the limitations with EPA’s choice of this lens for its discussion of environmental justice. Among these shortcomings are CBA’s requirement that every harm to human and environmental health be quantified and monetized, and that every effect, regardless of its nature or who it impacts, be aggregated and compared along the unitary dollar metric.¹⁵² Critics also cite biases in CBA’s techniques for measurement, its conventions regarding the discounting of future benefits, and its assumption that a society’s well-being can be expressed as an aggregation of its inhabitants’ preference satisfaction.¹⁵³ Each of these features of the method seems at odds with a concern for environmental justice, which counsels agencies to evaluate decisions in a more contextualized manner, to consider

¹⁴⁸ *Id.*

¹⁴⁹ *Id.*; see also Comments of Catherine A. O’Neill, Member Scholar, Ctr. for Progressive Regulation (Jan. 3, 2005), available at <http://www.regulations.gov/fdmspublic/component/main?main=DocumentDetail&o=09000064800badcc> (providing comments on Proposed National Emissions Standards for Hazardous Air Pollutants; and, in the alternative, Proposed Standards of Performance for New and Existing Stationary Sources, Electric Utility Steam Generating Units: Notice of Data Availability, 69 Fed. Reg. 69,865 (Dec. 1, 2004), and incorporating by reference documents that explicitly stated that the ranges presented were average values rather than high-end, maximum, or “near-bounding” values from the 1993 GLIFWC study of tribal spearkers’ walleye consumption).

¹⁵⁰ EPA, Final CAMR, *supra* note 6, at 28,648.

¹⁵¹ For an excellent general critique of the method, see FRANK ACKERMAN & LISA HEINZERLING, PRICELESS, ON KNOWING THE PRICE OF EVERYTHING AND THE VALUE OF NOTHING (2004); for a critique of the method in the specific context of the CAMR, see Catherine A. O’Neill, in ALTERNATIVES TO REGULATORY IMPACT ANALYSIS (Harrington et al., eds.) (forthcoming, 2008); for a discussion of a pragmatic approach to remedying CBA’s ills, see Sidney A. Shapiro & Christopher H. Schroeder, *Beyond Cost-Benefit Analysis: A Pragmatic Orientation*, HARV. ENVTL. L. REV. (forthcoming 2008) (manuscript at 21–32, on file with author).

¹⁵² See ACKERMAN & HEINZERLING, *supra* note 151, at 35–40 (discussing the impossibility of monetizing the priceless benefits of regulation for comparison with often-overestimated costs).

¹⁵³ See, e.g., *id.*

what is at stake for whom, and to attend to instances of distributive injustice.

EPA's RIA narrowly described the universe of benefits to be considered, focusing only on impacts to human neurodevelopmental health.¹⁵⁴ Moreover, because EPA's method called for an accounting in dollars, any benefit of reducing mercury contamination that was not amenable to representation in monetary terms was simply unaccounted for. With CBA, monetizability functions as a *de facto* criterion for consideration at all. If an impact—such as the fraying of the social fabric of a fishing tribe when fish, fishing, and the associated practices are no longer a part of members' daily lives and no longer a source of the intergenerational transfer of traditional ecological knowledge—cannot be (or has not been) monetized, it will be entered in the ledger as a “0” value. In the case of the CAMR, the EPA acknowledged that its benefits analysis was limited to the human health “endpoint” of IQ decrements “because it can be monetized.”¹⁵⁵ To be sure, EPA noted that reducing mercury would bring about additional benefits that had not been quantified.¹⁵⁶ But it has long been recognized that, with CBA's bottom line available, such qualitative descriptions tend to fade from view, while the quantitative account comes to dominate the public debate.

The requisite of monetization also opens the door for manipulation, a particular problem when those wielding the calculator are hostile to environmental regulation and insensitive to environmental justice.¹⁵⁷ Here, the Bush EPA seems to have taken every opportunity to choose inputs and make assumptions that minimize the dollar value of the benefits to be gained from reducing mercury. For example, EPA opted for a low dose-response curve to relate maternal mercury levels to IQ decrements in children

¹⁵⁴ See, e.g., Lisa Heinzerling, Catherine A. O'Neill & Rena I. Steinzor, Ctr. For Progressive Reform, Mercury, <http://www.progressivereform.org/perspectives/mercury.cfm> (last visited Apr. 13, 2008).

EPA makes several crucial cuts in its benefit calculus: it counts only benefits to human health (and so excludes ecological health and other benefits, including, e.g., economic, social, political, cultural and spiritual well-being for the fishing tribes), and of these human health benefits, it counts only neurodevelopment effects and so excludes cardiovascular and other effects. If further winnows the benefits, by counting only neurodevelopment effects that are captured by IQ decrements.

Id.

¹⁵⁵ EPA, Final CAMR, *supra* note 6, at 28,641 (“EPA determined that IQ decrements due to Hg exposure is one endpoint that EPA should focus on for a benefit analysis, because it can be monetized.”).

¹⁵⁶ EPA, CAMR RIA, *supra* note 90, at 10-1 to 10-2 (reciting, by way of disclaimer, that “the Agency believes that the benefits presented in [the RIA] likely underestimate the total benefits of reducing mercury emissions from power plants” due to the fact that it is “unable to quantify several categories of potential benefits,” including other human health and ecological effects).

¹⁵⁷ EPA's RIA appears to illustrate once again the observation that CBA operates in practice as a one-way ratchet, systematically understating the benefits of environmental and other regulation. See David M. Driesen, *Is Cost-Benefit Analysis Neutral?* 77 U. COLO. L. REV. 335 (2006); ACKERMAN & HEINZERLING, *supra* note 151, at 40; Shapiro & Schroeder, *supra* note 151, (manuscript at 20–21, on file with author) (describing the call for “regulatory relief” as one of the primary motivating factors behind the adoption of CBA).

exposed *in utero*, one that is roughly one-third that employed by a team of specialists in pediatric medicine.¹⁵⁸ EPA constructed an estimate of the number of Chippewa children who will be exposed *in utero*, in an effort to account for “high risk” populations, but used a census-based approach that by its own estimate likely undercounted the exposed population “by about 50 percent.”¹⁵⁹ And, as noted above, EPA coupled this with a fish consumption rate, 20 grams/day, that likely grossly underestimated exposure.¹⁶⁰ Indeed, some of EPA’s assumptions, while perhaps unobjectionable to an economist, raise issues that would likely be controversial to most ordinary people, let alone those concerned for environmental justice. For example, in arriving at its exposed population number for the Chippewa case study, EPA adjusted the general population fertility rate downward, to reflect that fact that, whereas for the general population there are 65.3 live births per 1000 women aged fifteen to forty-four, for American Indians there are 58.1 live births per 1000 women.¹⁶¹ Although the reasons for this differential are surely complex, it is worth noting that to the extent that these relatively lower fertility rates reflect poorer opportunities for American Indian women to obtain prenatal and obstetric care, this disadvantage is effectively held against them. Because EPA employs the relatively lower fertility rate to obtain a lower number for the exposed population, the result is a reduced estimate of the benefits of mercury regulation for this population. And, while EPA remedies some of these calls in its “sensitivity analysis” by employing a greater fish consumption rate, EPA leaves other errors intact and ultimately retains the reductionist understanding of the harms of mercury contamination solely in terms of IQ decrements.

Further, the RIA illustrates the problems raised by an attempt to monetize the harms to human health and well-being from mercury contamination. The RIA arrived at its estimate that each IQ point loss is worth \$8807 by determining the associated loss in expected future income

¹⁵⁸ EPA ultimately assumes a relationship of -0.16 IQ points for each ppm of maternal hair mercury. RESPONSE TO SIGNIFICANT PUBLIC COMMENTS, *supra* note 89, at 111–13. In contrast, Dr. Leonardo Trasande and his colleagues calculate a relationship of -0.465 IQ points per ppm of maternal hair mercury. See Trasande et al., *Economic Consequences of Mercury*, *supra* note 12, at 392; see also Charles Griffiths et al., *A Note on Trasande et al., Public Health and Economic Consequences of Methylmercury Toxicity to the Developing Brain* 8 n.3 (Nat’l Ctr. for Env’tl. Econ., Working Paper No. 06-02, 2006), available at [http://yosemite.epa.gov/ee/epa/eed.nsf/ffb05b5f4a2cf40985256d2d00740681/dd32a21a7da2bdf38525715500485642/\\$FILE/2006-02.pdf](http://yosemite.epa.gov/ee/epa/eed.nsf/ffb05b5f4a2cf40985256d2d00740681/dd32a21a7da2bdf38525715500485642/$FILE/2006-02.pdf) (while Dr. Trasande and his colleagues presented the dose response curve in terms of ppb of mercury in cord blood, this figure can be converted into ppb of mercury in hair for comparison). Note that the EPA CAMR actually gives this figure as -0.13 IQ points per ppm maternal hair mercury. EPA, CAMR RIA, *supra* note 90, at 9-7. However, EPA revised its estimate to -0.16 IQ points per ppm maternal hair mercury upon reconsideration. Griffiths et al., *supra*, at 8 (explaining that this revision came in response to public comment); see also RESPONSE TO SIGNIFICANT PUBLIC COMMENTS, *supra* note 89, at 111–13.

¹⁵⁹ EPA, CAMR RIA, *supra* note 90, at 10-120 to 10-122.

¹⁶⁰ *Id.*

¹⁶¹ *Id.*

experienced by those children prenatally exposed.¹⁶² While there are practical limitations to this loss-in-earnings method, its premises are even more troubling. This approach is reductionist and inequalitarian: it rests on a view that a person's worth is determined by his or her earning power. As such, it effectively values more highly those who are young, male, white, and rich.¹⁶³ As Professors Frank Ackerman and Lisa Heinzerling have argued, the implications for public policy are highly unpalatable in a society that holds dear the "ideals of democracy and equal treatment under the law, let alone the sacredness of every human being."¹⁶⁴ Moreover, as Ackerman and Heinzerling have pointed out, a particularly egregious consequence of the loss-in-earnings approach "is that it implies that the lives of retired people are worth nothing—or perhaps less than nothing, since they consume scarce goods and services without earning or producing any marketed goods themselves."¹⁶⁵ Taken to its logical conclusion, they observe, this perspective would suggest a net social benefit to policies that kill older people.¹⁶⁶

As repugnant as this conclusion might sound to most people, it is likely to be even more profoundly at odds with the perspectives of the groups most affected by mercury contamination, namely various Native peoples.¹⁶⁷ For these peoples, elders are not the least valued, but among the most cherished

¹⁶² U.S. ENVTL. PROT. AGENCY, TECHNICAL SUPPORT DOCUMENT REVISION OF DECEMBER 2000 REGULATORY FINDING ON THE EMISSIONS OF HAZARDOUS AIR POLLUTANTS FROM ELECTRIC UTILITY STEAM GENERATING UNITS AND THE REMOVAL OF COAL- AND OIL-FIRED ELECTRIC UTILITY STEAM GENERATING UNITS FROM THE SECTION 112(C) LIST: RECONSIDERATION (2005), *available at* http://www.epa.gov/ttn/atw/utility/tsd_oar-2002-0056-6303.pdf.

¹⁶³ See also CLIFFORD RECHTSCHAFFEN & EILEEN GAUNA, ENVIRONMENTAL JUSTICE: LAW, POLICY & REGULATION 37 (2002) ("recounting arguments of Lawrence Summers, then chief economist for the World Bank, in favor of shifting polluting industries to less developed countries: [t]he measurement of the costs of health impairing pollution depends upon the forgone earnings from increased morbidity and mortality. From this point of view a given amount of health impairing pollution should be done in the country with the lowest cost, which will be the country with the lowest wages. I think the economic logic behind dumping a load of toxic waste in the lowest wage country is impeccable and we should face up to that.") *Id.*

¹⁶⁴ ACKERMAN & HEINZERLING, *supra* note 151, at 72.

¹⁶⁵ *Id.*

¹⁶⁶ Lest someone think that Professors Ackerman and Heinzerling's observation is far-fetched and would never see the light of day in a policy context, consider that a noted economist, W. Kip Viscusi, undertook research that concluded that states in fact saved money when their citizens smoked. *Id.* Because smokers die early, states were saved the expense of providing elder care and other services associated with an aging population. *Id.* This study was undertaken at the time when the question was very much in the public realm, as states were in litigation with the tobacco companies, seeking reimbursement for the medical costs the states incurred as a result of smoking. *Id.* As Ackerman and Heinzerling note, "[a]ccording to Viscusi, the financial benefit to the states of their citizens' premature deaths was so great that, if some of his results were 'taken at face value,' then 'cigarette smoking should be subsidized rather than taxed.'" *Id.*

¹⁶⁷ Note that this perspective seems to be largely missing from the literature debating QALYs and similar approaches involving controversial judgments about the relative value of human life in its various stages in which economists ask, "Is Granny Worth \$2.3 Million or \$6.1 Million?" See Robert W. Hahn & Scott Wallsten, AEI-Brookings Joint Center Policy Matters 03-13, *Is Granny Worth \$2.3 Million or \$6.1 Million?*, (May 2003), *available at* <http://www.aei-brookings.org/policy/page.php?id=138&printversion=1> (last visited Apr. 13, 2008).

members of the community.¹⁶⁸ Their contributions—as holders of traditional knowledge, custodians of cultural practices, keepers of historical records, guardians of the youngest tribal members—are recognized as an irreplaceable “asset” that comprises the intergenerational legacy of the tribe.¹⁶⁹ Importantly, elders’ “value” to the tribal community comes not chiefly from market-based employment, but from other contributions.¹⁷⁰ The fact that they are not bringing in income from the market economy is not viewed as detracting from their value to the tribe. To the contrary, elders’ ability to fulfill their role in the community is in part enabled by the fact that they are not busy working “9 to 5” in fact, a need to participate as earners in the market economy can compromise their ability to perform traditional duties.¹⁷¹

In the end, EPA did not need to concern itself with winnowing the benefits and low-balling the inputs. By employing the tool of CBA in the first place, the RIA considered the impacts in aggregate terms. The fact that there are so few Chippewa—and so very few exposed Chippewa, by EPA’s estimate—means that, no matter how dire the effect of methylmercury for these people in individual terms, the sum will be but a drop in the bucket. That is, once EPA estimated that the exposed Chippewa population was only 10,947, it was not surprising that EPA concluded that the monetized benefits of mercury regulation to even this highly exposed population were miniscule, i.e., a mere \$6300 to \$6700.¹⁷² This point raises a fundamental difficulty with CBA. CBA assumes that a nation’s well-being can be expressed as an aggregation of its inhabitants’ well-being (characterized in terms of preference satisfaction). Where what constitutes the good differs from group to group, this focus on a mere summation of impacts will always be a problem for those in the numerical minority. Even large harms to a group in the numerical minority will never have much effect on the bottom line.¹⁷³

D. EPA Declined to Engage the Impacts of Delay

In crafting its final rule, EPA flatly refused to engage the crucial matter of the delay in emissions reductions under the CAMR relative to a section 112 MACT-based approach. As noted above, the CAMR instated a

¹⁶⁸ See, e.g., SWINOMISH TRIBAL COMMUNITY, SWINOMISH TRIBAL MENTAL HEALTH PROJECT, A GATHERING OF WISDOMS: TRIBAL MENTAL HEALTH: A CULTURAL PERSPECTIVE 145–63 (Swinomish Tribal Community 1991) Examining “Tribal Family Systems” and finding that “[e]lders have a unique and honored place in Indian society” as “the teachers and carriers of tradition.” *Id.* at 154. Elders’ “greater life experience, historical perspective, spiritual knowledge and closer ties to the old ways of tribal ancestors make them a valuable resource for younger people,” with those who lack elders “considered ‘poor.’” *Id.* at 154, 156.

¹⁶⁹ *Id.* at 154.

¹⁷⁰ *Id.* (For example, “[o]lder people, especially grandparents, are often the primary teachers of children, and not infrequently are their primary care givers.”).

¹⁷¹ See, e.g., Donatuto, *supra* note 132.

¹⁷² EPA, CAMR RIA, *supra* note 90, at 10–124, 10–130.

¹⁷³ But cf. Matthew D. Adler, *Against ‘Individual Risk’: A Sympathetic Critique*, 153 U. PA. L. REV. 1121, 1125 (2005) (arguing for a population-risk based approach over what he takes to be the current, individual-risk based inquiry).

cap-and-trade program with exceptionally weak caps and lenient timelines for compliance; according to EPA's own projections, the promised 70% reductions in mercury emissions would not be achieved until well into the 2020s or even as late as the 2030s. This stands in stark contrast to the 90% reductions to be achieved by 2007 expected under a MACT standard. Once EPA embraced its cap-and-trade approach, it abandoned all efforts to consider a MACT-based approach, rebuffed calls from numerous quarters for more immediate and meaningful emissions reductions, and thwarted observers' attempts to compare the CAMR with more protective alternatives.¹⁷⁴ The delay in emissions reductions afforded by the CAMR amounts to a generous reprieve to utilities. But this reprieve comes on the backs of all those exposed to harmful levels of mercury in the meantime.

What does this delay in emissions reductions mean? According to recent data, between 316,588 and 637,233 children are born each year with cord blood mercury levels greater than 5.8 µg/L, a level associated with loss of IQ.¹⁷⁵ Considering only this adverse impact, the failure to control anthropogenic sources of mercury has irreversible consequences, affecting the intelligence and prospects for each of these children throughout his or her life. Dr. Leonardo Trasande and his colleagues have quantified the impact of the failure to control U.S. coal-fired utilities, and concluded that it costs \$1.3 billion each year.¹⁷⁶ That is, they found that these costs will be exacted each year, from the several hundred thousand children in each new birth cohort who are exposed *in utero* to harmful levels of mercury—which costs they tallied mainly in terms of loss future earnings.¹⁷⁷ If one takes these figures and multiplies them by the number of years that EPA's CAMR delays meaningful emissions reductions, one can get a sense of the costs of delay. Assuming, generously, that the CAMR will result in substantial reductions in mercury emissions by 2023, this represents a delay of fifteen years relative to the compliance date for the 90% reductions expected under a MACT-based approach in 2007. This fifteen-year delay will visit permanent harm on *millions* of children—that is, all other things being held equal, between 4,748,820 and 9,558,495 children will be born with cord blood mercury at levels associated with a loss of IQ during the period that utilities enjoy a reprieve from regulation. This

¹⁷⁴ See, e.g., STEINZOR, *supra* note 35, at 103–25. Professor Steinzor recounts the history of EPA's rulemaking, tracing the shift in EPA's focus away from a MACT-based approach, which was a "foregone conclusion" until some time in the spring of 2003, when senior political appointee Jeffery Holmstead "dropped a bombshell": he directed staff to develop a cap-and-trade program and to halt all efforts to produce additional information on the costs, benefits, and feasibility of various MACT options. *Id.* at 114–15.

¹⁷⁵ See Dr. Leonardo Trasande & Dr. Philip Landrigan, *Keep Children Away From Chemicals: Mercury Harms Developing Brains, Slows Economy*, POUGHKEEPSIE J., June 26, 2005, <http://www.poughkeepsiejournal.com/sections/environment/stories/062605s1.shtml> (last visited Apr. 12, 2008).

¹⁷⁶ *Id.*

¹⁷⁷ Trasande et al., *Economic Consequences of Mercury*, *supra* note 12, at 590 (assuming that 405,881 children born each year while excluding postnatal exposures and an additional 231,352 children with fetal exposures just under 5.8, and providing a "true" range of \$0.1 to \$6.5 billion each year).

fifteen-year delay translates into \$19.5 *billion* dollars in the form of losses in future earnings for these children—to use the metric employed by EPA—attributable solely to U.S. utilities' portion of mercury emissions and exposure.¹⁷⁸ While these comparisons represent a rough cut,¹⁷⁹ they nonetheless provide a glimpse of the considerable costs—whether in terms of the life prospects for our children or in terms of social utility—of delay.¹⁸⁰

Of course, these comparisons reflect losses on the basis of general population data. Data more specific to affected tribes provide another window on the unjust impacts of delay. Whereas Trasande et al. considered a general population, and concluded that the most highly exposed 5% of children in each birth cohort would suffer losses in IQ ranging from 1.60 to 3.21 points, researchers at the Leech Lake Tribe considered Great Lakes tribal populations, and concluded that the average child in each birth cohort would suffer losses in IQ ranging from 6.2 to 7.1 points because of greater exposures entailed by the lifeways of these fishing peoples (e.g., tribal members consume highly contaminated species of fish, at higher rates, and at different frequencies than members of the general population; their exposures include bolus doses, given tribal members' extraordinary intake during certain seasons or in accordance with certain ceremonial

¹⁷⁸ Note that no discount rate has been applied for those born in 2023 compared to 2007.

¹⁷⁹ First, these figures calculate the benefits that would result from the complete elimination of utility-attributable mercury emissions, which overstates both the effect of a MACT-based approach (which would result in 90% reductions) and the effect of the CAMR (which is projected to result in 70% reductions). This assumption comports, however, with EPA's assumption for its IPM runs and for its upper-bound benefits analysis, so it provides a useful basis for comparison. Second, these figures compare benefits that would result when significant reductions are assumed to be achieved, respectively, in 2007 and in 2023, but this simplifying assumption does not account for the more modest reductions under the CAMR that are predicted to occur earlier, due to the operation of the Phase I cap in 2010 and, in some models, due to structural features of the cap-and-trade program, namely, its banking mechanism. EPA estimates mercury emissions to be reduced by 21% in 2010 (from 48 to 38 tons). EPA, CAMR EFFECTIVENESS TSD, *supra* note 39, at 1. The Congressional Research Service puts emissions reductions at 35% in 2010 (from 48 to 31.3 tons). MCCARTHY, *supra* note 40, at 7 tbl.2. In this respect, these figures likely overestimate the number of children harmed by the delay. Third, as noted above, these figures obviously represent only a partial account of the harms wrought by delay, accounting as they do only for IQ decrements to prenatally exposed children. In this respect, these figures underestimate the costs of delay.

¹⁸⁰ In fact, the more recent work of Trasande et al. adds to this estimate, by calculating the additional societal costs due to the increase in cases of mental retardation suffered by those children exposed *in utero* to utility-attributable mercury emissions. Trasande and his colleagues find that, while the CAMR will likely prevent some 1475 cases of MR and save \$4.1 billion in societal costs (due to lost economic productivity and to the costs of special education, health care, and other costs) over the years 2005 to 2020, more immediate and stringent emissions reductions could prevent an additional 4450 cases of MR and save an additional \$13.1 billion. Trasande et al., *Cost Analyses and Mercury Policy*, *supra* note 12. Trasande et al. evaluated reductions on the order of 70–90%, in line with legislative proposals on the table at the time of the CAMR. See generally EPA, Final CAMR, *supra* note 6 (discussing finalization of CAMR). See also U.S. Env'tl. Prot. Agency, Controlling Power Plant Emissions: Decision Process and Chronology, http://www.epa.gov/mercury/control_emissions/decision.htm (last visited Apr. 13, 2008) (providing a history of EPA's mercury regulation efforts).

practices).¹⁸¹ Native peoples in the Great Lakes and elsewhere have also recounted numerous other costs of a delay in mercury regulation, including impacts to tribal health along interrelated physical, social, cultural, and spiritual dimensions.¹⁸² The Aroostook Band of Micmacs, for example, described these additional costs of delay in comments to the EPA, emphasizing the permanent, intergenerational nature of the “loss of the culture which defines our Tribe.”¹⁸³

Here, as elsewhere, the costs of delay in environmental, health, and safety regulation are potentially large in dollar terms and unconscionable in human terms.¹⁸⁴ But there is no place in EPA’s cost-benefit method to register these costs of delay.¹⁸⁵ In fact, although EPA took pains in the CAMR RIA to model and offer benefits figures for numerous alternative scenarios, EPA never presented—and made it virtually impossible to determine—a direct comparison between the regulatory alternatives under a section 112 MACT-based approach and the section 111 cap-and-trade approach that comprises the final CAMR.¹⁸⁶ An astute observer would be

¹⁸¹ The Honorable George Goggeley Jr., Chairman, Leech Lake Tribal Council, address at International Conference on Mercury as a Global Pollutant, Madison, WI (Aug. 6, 2006); Telephone Interview with John Persell, Leech Lake Band Department of Natural Resources (Jan. 15, 2008).

¹⁸² See, e.g., GLIFWC Staff, *Tribal Perspective Shared at International Mercury Conference*, MAZINA’IGAN: A CHRONICLE OF THE LAKE SUPERIOR OJIBWE, Winter 2006–07 at 1, available at <http://www.glifwc.org/Publications/mazinaigan/Winter2006.pdf> (noting disproportionate impact on Tribes).

¹⁸³ Aroostook Band of Micmacs, Letter to EPA, *supra* note 4, at 1.

¹⁸⁴ See generally DAVID M. DRIESEN, *THE ECONOMIC DYNAMICS OF ENVIRONMENTAL LAW* 27–31 (2003) (arguing that CBA provisions in FIFRA and TSCA have produced “a conspicuous failure to make decisions” as illustrated by “the long and unsuccessful effort to address asbestos”). Early efforts to quantify this phenomenon highlighted the costs of delay for a single regulation. An eleven-year delay in regulating occupational exposure to benzene, for example, was estimated to result in some 30 to 490 excess deaths to those exposed between 1978 and 1987. William J. Nicholson & Philip J. Landrigan, *Quantitative Assessment of Lives Lost Due to Delay in the Regulation of Occupational Exposure to Benzene*, 82 ENVTL. HEALTH PERSP. 185, 187 (1989).

¹⁸⁵ Even proponents concede this limitation, as CBA is meant to take stock of a single option that is on the table. See, e.g., Henry S. Richardson, *The Stupidity of the Cost-Benefit Standard*, in *COST-BENEFIT ANALYSIS: LEGAL, ECONOMIC AND PHILOSOPHICAL PERSPECTIVES* 136 (Matthew D. Adler & Eric A. Posner eds., 2001) (“CBA has no place for the use of practical intelligence”). But cf. *infra* Part IV (arguing that CBA “best practices” call for more meaningful alternatives analysis).

¹⁸⁶ This deficiency in EPA’s CAMR RIA poses a real problem for those who tout the chief virtue of CBA as its transparency, its ability to inform public debate, and to allow the public to see why the decision at hand is “genuinely difficult.” See Cass R. Sunstein, *The Arithmetic of Arsenic*, 90 GEO. L.J. 2255, 2259 (2002) [hereinafter Sunstein, *Arithmetic*]. MATTHEW D. ADLER & ERIC A. POSNER, *NEW FOUNDATIONS OF COST-BENEFIT ANALYSIS*, 156 (2006); but cf. Shapiro & Schroeder, *supra* note 151, at 1–5. The EPA and President Bush similarly worked to thwart informed debate on the temporal dimensions of the regulatory options for mercury in their public statements accompanying the CAMR. As noted above, EPA never actually stated the date by which it projected mercury emissions would be reduced by the 70% promised by the Phase II cap. Instead, EPA and the President assiduously avoided the question, by citing the date of the cap, 2018, and then, in the following sentence, saying “when fully implemented [CAMR will result in a 70% reduction in mercury emissions from coal-fired utilities].” See, e.g., Office of the President, *Cleaner Air*, <http://www.whitehouse.gov/ceq/clean-air.html> (last visited Apr 12, 2008). In a similar vein, note this document dismisses as “myth” the argument that “EPA is delaying the benefits of mercury regulation until 2018” and offers as “fact” the claim that “the substantial amount of emissions

hard pressed even to ballpark this comparison.¹⁸⁷

In the context of mercury regulation, the delay permitted by EPA's choice was of the utmost concern. Because a child exposed to mercury can suffer lifelong, irreversible harms, and because each year of inaction meant a new birth cohort of children would be exposed, EPA's inquiry should have centered around not only the magnitude of the emissions reductions to be required but also the timing of those reductions. Instead, EPA used its RIA to obscure and preempt this issue. In fact, by discounting the benefits realized in the future (per the conventions of CBA), EPA slighted those exposed both coming and going. EPA made these people wait years for any protection, and so were able to discount what that protection is worth.

Note, too, that, although the D.C. Circuit's result in *New Jersey v. EPA* is to be celebrated, one consequence of the decision is that EPA will have to return to the drawing board to produce a legally permissible rule in accordance with section 112 of the Clean Air Act, resulting in even further delay.¹⁸⁸ At a minimum, emissions reductions will not be required until at least three years later than originally would have been the case, during

reductions . . . will come in the early stages." *Id.*

¹⁸⁷ EPA provided an estimate of the benefits that would result if utility-attributable mercury emissions were to be eliminated entirely in 2001 (assuming "base case" conditions). EPA also provided an estimate of the benefits that would result from the co-benefits to be realized in 2020 through the implementation of CAIR relative to this 2001 baseline. However, even here, EPA left the observer to rectify several key assumptions—the most obvious of which is that EPA presented the former estimate as a present value in 2001 and the latter estimate as a present value in 2020. Notably, EPA did not present any estimates of the benefits that would flow from regulation of mercury emissions relative to this 2001 baseline. Instead, EPA *reset* the baseline by assuming a new "base case" as of 2020 and assuming CAIR had already been implemented. Further, EPA presented the benefits of alternative mercury emissions reductions scenarios only vis-à-vis this new baseline in 2020. Thus, while EPA purported to consider various control scenarios (e.g., assuming utility-attributable mercury emissions were to be eliminated entirely in 2020) or assuming the control scenario that actually became the final CAMR (reflected in the RIA as "CAMR Control Option 1"), it only ran the numbers relative to its new 2020 baseline. EPA thus never directly compared—and appeared to thwart observers' efforts to compare—scenarios reflecting dates and emissions reductions that matched the two competing regulatory alternatives. See *generally* EPA, CAMR RIA, *supra* note 90.

¹⁸⁸ See *supra* note 9 and accompanying text. After *New Jersey v. EPA*, EPA must comply with the terms of section 112. Having listed utilities under section 112(c)(1), EPA is required to issue MACT standards for that source category under 112(d) or to satisfy to substantial prerequisites for de-listing, set forth in 112(c)(9). Under section 112(c)(9), EPA "may delete any source category from the [section 112(c)(1)] list" only if it finds that "emissions from no source in the category . . . exceed a level which is adequate to protect public health with an ample margin of safety and no adverse environmental effect will result from emissions from any source." 42 U.S.C. § 7412(c)(9) (2000). It seems doubtful that EPA would be able to meet this high hurdle for de-listing. Observers have suggested that it is "unlikely" that EPA would seek a rehearing en banc before the D.C. Circuit or petition the Supreme Court for certiorari give "the unanimity and complete certainty" of the D.C. Circuit's decision. See ROBERT MELTZ & JAMES E. MCCARTHY, THE D.C. CIRCUIT REJECTS EPA'S MERCURY RULES: NEW JERSEY V. EPA, CONG. RES. SERV. REP. 4 (2008), available at www.dnr.wisconsin.gov/air/pdf/CRS22817report20080228.pdf. However, as this Article goes to press, EPA and the Utility Air Regulatory Group filed separate petitions for rehearing before the entire D.C. Circuit. Robert C. Cook, *EPA, Industry Group File Rehearing Motions Seeking Review of Opinion in Mercury Case*, BNA Daily Envtl. Rep., Mar. 27, 2008, at A-3.

which time significant numbers of children will be born with neurological damage and during which time mercury's other harms will be wrought.¹⁸⁹ It is perhaps not too cynical, given the history of EPA's efforts in this rulemaking, to suggest that the Bush EPA will find solace in having bought for utilities at least this much respite from regulation.

E. EPA Ignored Those Impacts to Tribes that are Different in Kind

Given the identities of those most exposed, among them fishing peoples in the Great Lakes and elsewhere, the burden of mercury contamination is not only different in degree but also different in kind. The harms of mercury are imposed along interrelated ecological, economic, social, cultural, spiritual, and political dimensions, as the discussion thus far has highlighted. Although tribes and other advocates labored to bring this fact to EPA's attention during this rulemaking, there is simply no place in EPA's RIA that these considerations got reflected. This criticism goes to the heart of the choice to use CBA, as there is no place in its calculus for considerations untranslatable to the dollar metric. As the Minnesota Chippewa Tribe urged in its comments to EPA: "For our Tribe, the stakes are high in this fight to limit mercury emissions . . . [M]ercury is toxic and is negatively impacting many facets of the health, well-being, and social fabric we all value . . . If it is a cost and benefit question then I must ask what profits are worth the health of our children and grandchildren?"¹⁹⁰

Additionally, EPA's analysis ignores the costs—in dollar terms and in human terms—that EPA's lenient regulation introduces. Because the CAMR delays and diminishes mercury emissions reductions, it requires little change from the status quo in terms of mercury contamination for years, if not decades. In the meantime, public health agencies will be left to issue fish consumption advisories, urging people to change their lifeways to avoid the risks of contamination. In fact, EPA self-consciously relied on such risk avoidance measures, given the CAMR's failure meaningfully to reduce mercury emissions. EPA had conceded in the Preamble to its proposed mercury rule that tribal members and others who regularly consume fish would remain at greater risk than "the typical U.S. consumer."¹⁹¹ "In response," EPA directed these people to the relevant fish consumption advisories, shifting the responsibility to avoid the risks of mercury contamination to those most exposed.¹⁹²

¹⁸⁹ Robert Meltz and James McCarthy have opined that, given the fact that the EPA abandoned its earlier efforts to produce MACT standards for coal-fired utilities and given that there have been significant advances in available control technology in the meantime, developing MACT standards in the wake of *New Jersey v. EPA* will require deliberation and potentially delay promulgation until "as late as 2011," making the effective date for such standards 2014. MELTZ & MCCARTHY, *supra* note 188, at 5. They note, however, that there are numerous bills on the table that might alter this picture, including one that would require EPA to issue a MACT standard—one requiring 90% emissions reductions for mercury—by October 1, 2008. *Id.*

¹⁹⁰ The Minnesota Chippewa Tribe, Letter to EPA, *supra* note 2.

¹⁹¹ EPA, Proposed Mercury Rule, *supra* note 5, at 4658.

¹⁹² *Id.* at 4709. See generally O'Neill, *Mercury, Risk, and Justice*, *supra* note 22, at 11,106–12.

But risk avoidance is an approach with its own perils. First, its myopic focus on human health, narrowly understood, fails to account for the broader array of harms that may be relevant from tribes' perspectives. For example, fish consumption advisories do nothing to address the harms suffered by loons, mink, or other non-human components of ecosystems due to mercury contamination.¹⁹³ This is an affront to tribes such as the Minnesota Chippewa Tribe, which explained in comments to the EPA "if these animals are threatened, Tribal culture is threatened."¹⁹⁴ Second, to the extent that people comply with fish consumption advisories, the potential for countervailing risks is a serious concern. The nutritional benefits of frequent fish consumption are well known. For example, frequent consumption of fish is associated with a lower risk of stroke, a lower risk of Alzheimer's disease, and a decreased rate of cognitive decline with age.¹⁹⁵ For fishing peoples, the connection between fish consumption and health is especially marked. The loss of fish and other traditional foods "is now recognized as being responsible for a host of diet-related illnesses among Native Americans, including diabetes, obesity, heart disease, tuberculosis, hypertension, kidney troubles, and strokes."¹⁹⁶ Diabetes is a particular concern for tribal people given that Native Americans' incidence of diabetes is two to three times that of all other groups combined.¹⁹⁷ The potential for loss in economic terms may be great as well. All those who rely on fish as a source of income or a dietary staple will suffer a real blow to their ability to put food on the table. These and other costs of relying on risk avoidance in lieu of risk reduction are simply not accounted for in EPA's quantitative tally. And, of course, there are many tribal people for whom compliance with fish consumption advisories is unimaginable, given the profound loss this would entail.

How did EPA grapple with the "choice" its decision imposed on the generation of girls in the Minnesota Chippewa Tribe who, in the absence of meaningful mercury regulation, will be advised to reduce or eliminate fish from their diets for more than half of their lives, i.e., throughout their childhood to age twenty (during which period they are vulnerable to neurodevelopmental toxins) and then throughout their childbearing years to age forty-four (during which period they might expose a developing fetus to irreversible neurological damage)? If the losses that this would entail are understood in the terms urged by the tribes and environmental justice

(describing EPA's embrace of risk avoidance in the Proposed CAMR).

¹⁹³ Note that a section 112 MACT-based approach, by contrast, would have required EPA to address directly these and other harms to non-human components of ecosystems, given its requirement that residual risks to human and environmental health be ameliorated. Clean Air Act, 42 U.S.C. § 7412(f) (2000).

¹⁹⁴ The Minnesota Chippewa Tribe, Letter to EPA, *supra* note 2.

¹⁹⁵ See O'Neill, *No Mud Pies*, *supra* note 81, at nn.218-20 and accompanying text.

¹⁹⁶ KARI MARIE NORGGAARD, THE EFFECTS OF ALTERED DIET ON THE HEALTH OF THE KARUK PEOPLE: A PRELIMINARY REPORT 5 (2004), available at <http://klamathsalmonlibrary.org/documents/Norgaard2004pd.pdf>.

¹⁹⁷ Ctrs. for Disease Control, *Health Disparities Experienced by American Indians and Alaska Natives*, MORBIDITY & MORTALITY WKLY. REP., Aug. 1, 2003, at 697.

advocates, decision makers might come to appreciate the multiple and interrelated dimensions of the harms, to these girls and to their people, with physiological, social, economic, cultural, spiritual, and political facets. If, on the other hand, the losses that this would entail are understood in terms of CBA, decision makers learn only that these girls will suffer a setback that is worth \$5372, in 1999 dollars—an amount that would justify little, if any, regulatory attention and a characterization of the harm that may deeply offend.

V. CONCLUSION

As soon as it became clear that mercury contamination had the potential to affect tribal rights and resources, EPA should have proceeded differently than when its rules affect only non-Indian interests. EPA's inquiry should have been differently framed. Importantly, EPA needed to confront squarely the impact of its decision on tribes' fishing rights, rather than consider these treaty-secured rights as a mere afterthought. As well, EPA's process should have been differently conducted. EPA ought to have consulted tribes from the outset of its rulemaking efforts, in an effort to comprehend what was at stake from tribes' perspectives. In the end, EPA should have evaluated and responded to the unjust impacts of mercury contamination in a manner that ameliorated, rather than perpetuated, a long history of cultural discrimination against tribes and their members.

If EPA means to contemplate and address environmental injustice in the tribal context, EPA would do well to examine the missteps in its analysis of the CAMR. Crucially, EPA should undertake such an examination in close counsel with the various tribes, who are the only ones able to elaborate their respective concerns.