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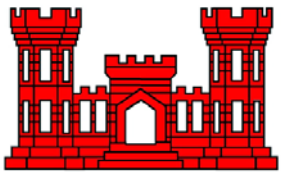
Part 1

Court Decision



U.S. Army Corps of Engineers
Memphis District

UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

ENVIRONMENTAL DEFENSE, *et al.*,	:	
	:	
Plaintiffs,	:	
	:	
v.	:	Civil Action No. 04-1575 (JR)
	:	
U.S. ARMY CORPS OF ENGINEERS, *et al.*,	:	
	:	
	:	
Defendants.	:	

MEMORANDUM

Plaintiffs Environmental Defense and National Wildlife Federation challenge the U.S. Army Corps of Engineers' authorization of a flood control project in the St. Johns Bayou and New Madrid Floodway on the west bank of the Mississippi River in the "bootheel" of southeastern Missouri. Plaintiffs ask the court to declare that the Corps, as well as the Secretary of the Army, Pete Geren, have violated the Water Resources Development Act of 1986 ("1986 WRDA"), the Water Resources Development Act of 1974 ("1974 WRDA"), the federal Clean Water Act ("CWA"), the National Environmental Policy Act of 1969 ("NEPA"), the Rivers and Harbor Appropriation Act of 1899 ("RHAA"), and the Administrative Procedure Act ("APA"); to declare that the USDA is violating the Swampbuster provisions of the Food Security Act of 1985 ("FSA") and the APA; and to enjoin these violations.[1]

[1]Although raised in the Second Amended Complaint, the claim against the USDA for violation of the Swampbuster provisions of the FSA were not addressed by either party in the motions for

In plaintiffs submission, the St. Johns Bayou-New Madrid Floodway Project is a terrible idea: It will not accomplish the flood control benefits claimed for it; its cost estimate relies on a discount rate last seen during the Eisenhower Administration; it violates statutory requirements for cost-sharing by local districts; and the Corps has improperly manipulated its habitat models to make it seem that the project's environmental impacts will be fully mitigated, when they will not. It is not for this court to determine whether the project is a good idea or a bad one, or to pass judgment on the policy implications of public works. On their last point, however, the plaintiffs are correct. As discussed below, the Corps of Engineers has resorted to arbitrary and capricious reasoning - manipulating models and changing definitions where necessary - to make this project seem compliant with the Clean Water Act and the National Environmental Policy Act when it is not. Because it is not, and because the government's arbitrary and capricious actions violate the Administrative Procedure Act, the plaintiffs' motion for summary judgment [87] must be granted. The defendants' cross-motion [92] will be denied. Further construction work on the project will be enjoined, and the Corps

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summary judgment nor discussed during oral argument. That claim is therefore consider considered to have been abandoned and is not addressed in this memorandum.

will be required to restore the disturbances created by the preliminary construction work that has already been completed.

Background[2]

> "The Mississippi will always have its own way; no engineering skill can persuade it to do otherwise; it has always torn down the petty basketwork of the engineers and poured its giant floods whithersoever it chose, and it will continue to do this." - *Mark Twain*

This case presents the latest chapter in the story of the complicated relationship between the Army Corps of Engineers and the mighty Mississippi River. The flood control project in question (originally two projects, now treated as one) would transform two major drainage basins in a 400,000 acre project area: the New Madrid Floodway, and the St. Johns Bayou Basin immediately to its west. The New Madrid Floodway piece of the project would close a 1500 foot gap in the Mississippi River Levee ("MRL"), construct a concrete box culvert with gates to control water flow between the river and the floodplain, and install a large pump to remove water from behind the closed gates. The St. Johns Basin piece involves construction of a second pump, to remove water that collects in the lower part of the St. Johns Basin, and the widening and straightening of three separate channels to speed water removal from the area.

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[2]The facts have been laid out in previous rulings and will not be repeated in detail in this memorandum. See, e.g., Envtl. Def. v. Army Corps of Eng'rs, 2006 U.S. Dist. LEXIS 47969 (D.D.C. 2006), [74].

The New Madrid Floodway is the last sizable section of the lower Mississippi River floodplain that remains connected to the river: 90 percent of the floodplain has been transformed – mostly into cropland - by the Corps and by the private developers it regulates. 2002 RSEIS, attached to Plaintiffs' MSJ [87] as Ex. 1 at E-53, E-73 (hereinafter "2002 RSEIS"). The construction of approximately 1600 miles of levees and supporting structures along the lower Mississippi began in a coordinated fashion in 1882. When the Corps completed the MRL in 1933, it left a quarter-mile gap along the New Madrid Floodway - the gap the Corps now proposes to close - so that the floodway could serve as a release valve for high water on the river. Id. at 100-01. When inundated, the floodplain provides invaluable habitat for fish and wildlife - half of the river's fish species follow the river as it spills into the floodway during flood conditions, to reproduce away from the river's punishing currents.

Seasonal flooding in the New Madrid Floodway interferes with farming and economic development, however, and the Corps has sought for many years to close the levee gap and drain the floodplain. It received congressional authorization to do so in 1954, and it has spent decades shoring up local support, developing complementary projects, and maneuvering around financial and environmental hurdles, in order to complete what it considers the final component of the Mississippi River Levee system. Especially cumbersome and time-consuming have been the

Corps' efforts to satisfy environmental requirements. In the last eight years alone, in response to numerous concerns and objections from government agencies and environmental groups, the Corps has prepared a Draft Supplemental Environmental Impact Statement (1999), a Final Supplemental Environmental Impact Statement (2000), a Revised Supplemental EIS (2002), and a second Revised Supplemental EIS (2006), prompting a biologist studying the project to fret that the agency may run out of abbreviations.

Plaintiffs filed this lawsuit in September 2004 challenging the 2002 RSEIS and subsequent Record of Decision ("ROD"). They moved for summary judgment on their many claims in March 2005 [23]. Defendants cross-moved for summary judgment in May 2005 [31]. In June 2005, three days before the date set for oral argument on the cross-motions, defendants acknowledged a major math error in the 2002 RSEIS, withdrew their challenged ROD and their cross-motion for summary judgment, and moved for a remand so that the Corps could prepare another Revised Supplemental Environmental Impact Statement [40]. I allowed the remand on condition that an appropriate attorneys' fee award be negotiated [48]. When the parties reported their inability to agree on a fee award, I stayed the case anyway, to await the issuance of a revised project plan [51].

In May 2006, plaintiffs moved to compel the filing of an administrative record [53], and in June 2006, plaintiffs moved for a preliminary injunction [58] and filed a second amended

complaint [105]. I denied the preliminary injunction in July 2006, finding that, although plaintiffs had demonstrated a substantial likelihood of success on the merits of one of their claims, the first phase of construction was unlikely to inflict irreversible injury [74]. I conditioned that ruling on the Corps' agreement to undo any project construction in the event of plaintiffs' ultimate success on the merits of their case. In August 2006, the Corps announced that it would shortly issue a Notice of Intent to Proceed with the first phase of construction: site preparation for the pumping plant, involving the creation of a cofferdam [80]. Plaintiffs objected to the plan, claiming that it violated the terms of my earlier ruling [81]. After considering the arguments of the parties at a hearing on an emergency motion for a preliminary injunction, again warning the Corps of my intent to order deconstruction if plaintiffs ultimately prevailed, and receiving assurances that defendants would not contest the court's authority to order such a remedy, I found that the first phase of construction would not result in irreparable injury, and I denied the renewed motion for a preliminary injunction.

At a hearing on subsequent cross-motions for summary judgment in February 2007, the Corps reported that the cofferdam construction permitted under my ruling in August 2006 would be

complete by May or June 2007.[3] The summary judgment motions were taken under advisement and are considered below.

Analysis

Legal Standard

A federal agency's compliance with its statutory and regulatory obligations is subject to review under the APA. The APA creates a cause of action for challenges to final agency actions, findings, or conclusions alleged to be "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with the law." 5 U.S.C. § 702(2)(A). While the court's review must be "searching and careful, the ultimate standard of review is a narrow one[;] [t]he court is not empowered to substitute its judgment for that of the agency." Citizens to Preserve Overton Park v. Volpe, 401 U.S. 402, 416 (1971), *overruled on other grounds*. This deferential standard guards against "undue judicial interference with [agencies' exercise of] lawful discretion, and [prevents] judicial entanglement in abstract policy disagreements which courts lack both the expertise and information to resolve." Norton v. Utah Wilderness Alliance, 542 U.S. 55, 66 (2004). In applying this standard, the court must engage deeply with the administrative record in order to "determine whether the agency decision was rational and based on consideration of the relevant factors."

[3]A more recent construction report indicated that this phase of project construction would be completed no earlier than August 2007 [110].

Ethyl Corp. v. EPA, 541 F.2d 1, 36 (D.C. Cir. 1976). Action will be set aside under the APA if the agency identified no "rational connection between the facts found and the choice made," if the "explanation for its decision [ran] counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise." Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co., 463 U.S. 29, 43 (1983) (internal quotations omitted). The Corps' 2002 RSEIS, 2006 RSEIS, and findings of compliance with statutory and regulatory requirements are all reviewable under the APA.

Plaintiffs' Challenges

Plaintiffs' challenges to the St. Johns Bayou-New Madrid Floodway Project fall into three broad categories. First, plaintiffs argue that the Corps' proposed mitigation will not fully offset the project's environmental impacts on fish and waterfowl. Second, they argue that the Corps conducted a deficient analysis of alternative projects and selected a project that insufficiently addresses a primary project purpose. Third, plaintiffs argue that the Corps' project is built upon a severely flawed economic analysis.

Distortions in the Agency's Fish Mitigation Analysis

It is undisputed that the largest environmental impact of the combined project will be on fisheries resources. Absent mitigation, the flood control project would have a devastating

impact on fisheries resources in the project area. In its environmental impact statements, the Corps has consistently acknowledged its intent to mitigate fully unavoidable adverse impacts on the fisheries resource. In its 2006 Record of Decision, the Corps again declared its "belie[f] that the fisheries resource will be fully mitigated." 2006 ROD, attached to Plaintiffs' MSJ [87] as Ex. 121 at 1632. Plaintiffs challenge this finding for several reasons, which will be addressed below.

The Corps' mitigation analysis is a major component of the project's compliance with the Clean Water Act. The CWA requires that all projects, such as this one, involving the discharge of dredged material into the waters of the United States, satisfy § 404(b) guidelines promulgated by the Environmental Protection Agency, 33 U.S.C. § 1344(b)(1), as incorporated in the Corps' regulations. The CWA prohibits the Corps from issuing permits to projects that will have a significant adverse impact on the environment,[4] and the Corps is

[4]The Corps is charged with issuing § 404(b) permits to private parties and with authorizing "its own discharges of dredged or fill material by applying all substantive legal requirements, including public notice, opportunity for public hearing, and application of the section 404(b)(1) guidelines." 33 C.F.R. § 336.1(a). The "Corps does not process and issue permits for its own activities," id., but it "shall be subject to, and comply with, all . . . requirements . . . respecting the control and abatement of water pollution in the same manner, and to the same extent as any nongovernmental entity." 33 U.S.C. § 1323(a)(2). The Corps' EIS and ROD for projects such as this one serve the same purpose as §404(b) permits for private parties - they are the enabling documents that certify compliance with the regulations and allow the project to go forward.

required to calculate adverse impacts by analyzing the short and long term consequences of discharges on the "physical, chemical, and biological components of the aquatic environment." 40 C.F.R. § 230.11. The Corps may approve a project only if it is the least damaging practicable alternative, if its discharges do not cause or contribute to significant degradation of the waters of the United States (including, in relevant part, loss of fish and wildlife habitat), and if potential adverse impacts to aquatic ecosystems are minimized to the extent practicable. 40 C.F.R. § 230.10.

In its 2006 RSEIS, the Corps certified the project's full compliance with the Clean Water Act and the Section 404(b)(1) guidelines, and declared that "impacts to significant fish and wildlife resources are fully compensated." 2006 RSEIS, attached to Plaintiffs' MSJ [87] as Ex. 104 at x, table S.2 (hereinafter "2006 RSEIS"). As explained below, however, this certification of compliance "runs counter to the evidence before the agency [and] is so implausible that it [cannot] be ascribed to a difference in view or the product of agency expertise." State Farm, 463 U.S. at 43 (1983).

Environmental impact statements are also reviewed for compliance with the National Environmental Policy Act, which was designed to "prevent or eliminate damage to the environment." 42 U.S.C. § 4321. NEPA is a procedurally-oriented statute intended to prevent uninformed agency action. Agencies must prepare

environmental impact statements under NEPA for all projects "significantly affecting the quality of the human environment," 42 U.S.C. § 4332(2)(C), identifying "any adverse environmental effects which cannot be avoided should the proposal be implemented," 42 U.S.C. § 4332(C)(ii). A "reasonably complete discussion of possible mitigation measures" is implicitly required. Robertson v. Methow Valley Citizens Council, 490 U.S. 332, 351 (1989).

"Accurate scientific analysis, expert agency comments, and public scrutiny are essential to implementing NEPA." 40 C.F.R. § 1500.1. For this reason, agencies are under an affirmative mandate to "insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements[,] identify any methodologies used and . . . make explicit reference by footnote to the scientific and other sources relied upon for conclusions[.]" 40 C.F.R. § 1502.24.

Courts reviewing agency action for compliance with NEPA must confirm "that the agency has adequately considered and disclosed the environmental impact of its actions and that its decision is not arbitrary or capricious." Nevada v. Dept. of Energy, 457 F.3d 78, 87-88 (D.C. Cir. 2006). Under NEPA, if "the administrative record contains evidence that supports the positions of both the agency and the party seeking relief, the agency is entitled to rely on its experts' tests and

observations," Central South Dakota Coop. Grazing Dist. v. U.S. Dept. of Agric., 266 F.3d 889, 899 (8th Cir. 2001), "even if . . . a court . . . find[s] contrary views more persuasive." Marsh v. Or. Natural Res. Council, 490 U.S. 360, 378 (1989). "So long as the record demonstrates that the agencies in question followed the NEPA procedures, which require agencies to take a 'hard look' at the environmental consequences of the proposed action, the court will not second-guess the wisdom of the ultimate decision." Utahns v. United States DOT, 305 F.3d 1152, 1163 (10th Cir. 2002), citing Robertson, 490 U.S. at 350.

NEPA review, however, is not toothless. Reviewing courts must independently evaluate the record to confirm that the agency made a reasoned decision based on its analysis of the evidence before it. See, Marsh, 490 U.S. at 378. If it did not, a court "may properly conclude that the agency has acted arbitrarily and capriciously." Earth Island Inst. v. United States Forest Serv., 442 F.3d 1147, 1160 (9th Cir. 2006). Here, although the agency complied with NEPA by identifying and responding to criticisms in its 2002 RSEIS and in its 2006 RSEIS, several of its fish mitigation determinations were unsupported by record evidence, and it did not consistently comply with NEPA's requirement that the agency insure the accuracy and scientific integrity of the analyses contained in its environmental impact statements. 40 C.F.R. § 1502.24.

The Corps calculated project impact and proposed mitigation with the aid of habitat evaluation procedure ("HEP") models developed by an interagency team of experts comprised of internal and external biologists (the "HEP team"). Under the model, full mitigation is achieved when habitat loss equals habitat mitigation, see Defendants' MSJ [92] at 12 ("[m]itigation is complete when the habitat values of Project impacts are replaced[]"). Habitat is measured, roughly, by multiplying quality times quantity. The value assigned for quality varies based on the type of land under consideration. Quantity is not simply the number of acres flooded, but the number of flooded acres, discounted by how frequently those acres flood on average, and, sometimes, by the average water depth during a flood.

In its 2002 RSEIS, the Corps used discounted habitat quantity values for habitat loss, but not for habitat mitigation. Accordingly, its calculations greatly exaggerated the extent of the proposed mitigation for fisheries impacts, claiming that 8,375 total mitigation acres - instead of 8,375 average daily flooded acres (or "ADFAs") - would suffice. See Plaintiffs' MSJ [87] at 3-4. That was the error, eventually acknowledged by the Corps, that led to the withdrawal of the 2002 ROD and of the government's original motion for summary judgment, and the remand to correct the miscalculation.[5] Since the Corps requires all

[5]Note that the 2002 RSEIS was not withdrawn; to the extent that it was not explicitly superseded by the 2006 RSEIS, it remains valid and is under review in this case.

adopted projects to pass a benefit-cost test, and since, even with the underestimated mitigation, project benefits only slightly outweighed project costs, the Corps had to come up with numbers that would allow its mitigation proposal to fit the benefit-cost model.

In order to achieve mitigation totaling 8,375 AFDAs using the mitigation strategy proposed in the 2002 RSEIS, the Corps would have had to obtain an additional 124,000 total mitigation acres. See Declaration of Dr. Curtis Bohlen, attached to Plaintiffs' MSJ [87] as Ex. 111 at 1483 fn.1. That would cost approximately $200 million, Ex. 20 to Plaintiffs' MSJ [87] at 289, but the Corps could afford to add only slightly more than $3 million to project costs before flipping the benefit-cost ratio - so, in order to stay within budget, the Corps made several changes to its mitigation plan. See memo of Shawn Phillips assessing additional mitigation opportunities, attached to Plaintiffs' MSJ [87] as Ex. 107 at 1470.

The Corps' new fish mitigation proposal entails reforesting 6,356 acres[6] - a reduction from its 2002 plan. 2006 RSEIS at table 5.12. Most of the mitigation sites will be surrounded by levees and pumps to maintain shallow flooding throughout the spring. One thousand eight hundred acres of

[6]Total acres, not average daily flooded acres.

reforestation near Big Oak Tree state park will be maintained by a natural flood regime.[7] 2006 RSEIS at 101-02.

Those basic mitigation proposals leave a 97 percent mitigation gap in the New Madrid Floodway project and an 83 percent mitigation gap in the St. Johns Basin project, 2006 RSEIS at 32. The Corps' solution to this seemingly confounding problem relies heavily upon two additions to its mitigation proposal: changing the configuration of the "borrow pits" dug in the St. Johns Basin, and extending the flooding in the sump area behind the levee closure in the New Madrid Floodway during the mid-season.

It is not my role to "'flyspeck' an agency's environmental analysis, looking for any deficiency" in the Corps' calculations, but it is my responsibility to look carefully at the Corps' findings, to make sure that they were not arbitrary and capricious, and that the record supports the agency's compliance with NEPA and the CWA. Nevada v. DOE, 457 F.3d at 93. After giving the Corps' findings the required scrutiny, I have concluded that the Corps' adjustments were done arbitrarily, to manipulate the HEP model and to squeeze the New Madrid Floodway-St. Johns Basin project until it fit the Procrustean bed that is the agency's benefit-cost test.

[7]The phrases, "natural flood regime" or "naturally variable hydrology" refer to hydrology that rises and falls along with the natural patterns of the Mississippi River.

1. Fish access

Plaintiffs' first objection to the Corps finding that its plan will achieve full fish mitigation is that it does not account for reduced fish access to the floodplain. Plaintiffs' MSJ [87] at 27-31. Obviously, if fish are to use floodplain for spawning, they must have access to the floodplain when they are ready to spawn, but, although the dominant fish spawn seasonally, the model created by the HEP team does not distinguish between flooded acres that will remain accessible to fish and those that will be frequently or entirely inaccessible. As the Fish and Wildlife Service noted, the project impact and mitigation assessments both fail to account for "areas that will [remain] flooded but unavailable to fish." Oct. 7, 2002 Letter from FWS to Corps, attached to Plaintiffs' MSJ [87] as Ex. 5 at 26. The proposed mitigation will eliminate accessible habitat and substitute in its place mitigation sites that are frequently inaccessible to spawning fish.

The Corps' plan to strategically manipulate the levee gates will not significantly alleviate the problem of reduced fish access. First, because the project's primary goal is to reduce flooding, the levee gates will of course be closed in times of significant flooding -- the very time when the floodplain access is most valuable for the fish. In the 2002 RSEIS, the Corps conceded that "during high-water years . . . fish passage would be reduced or even prevented," 2002 RSEIS at

76. The 2006 RSEIS reveals a plan to close the gates for an even longer portion of the year in order to trap water in the floodplain for longer periods and enhance the habitat mitigation score calculated by the HEP model. The Corps' primary mitigation focus in the new 2006 plan is on fish that breed during the mid-season, 2006 RSEIS at 375, but the Corps now plans to close the levee gates throughout almost the entire mid-season, when water levels are high and fish are most likely to seek access to the floodplain, see Dr. Bohlen's analysis of Corps data, attached to Plaintiffs' MSJ [87] as Ex. 112 at 1515. When will the gates be open? Under both old and new plans, they will be open when water levels are lower, providing no access for the fish that travel to the floodplain to spawn during high flood conditions. See Deposition of Corps' biologist Dr. Killgore, attached to Plaintiffs' MSJ [87] as Ex. 21 at 354-55. Plaintiffs' ecologist and mitigation expert Dr. Curtis Bohlen, after reviewing the newest Corps mitigation plan in the 2006 RSEIS, determined that the need to keep the gates closed when water levels reach certain heights essentially guarantees that in years with habitat, there will be little or no fish access to the sump area during the mid-season; and in years with access, there will be little or no habitat. Dr. Bohlen's analysis of Corps data, attached to Plaintiffs' MSJ [87] as Ex. 112 at 1516.

Even when the levee gates are open, the fish access will be through culverts, and the evidence in the record suggests

that fish will be less likely to navigate culverts than open floodplain. Defendants submit that the culverts are wider than those that are known to interfere with fish access, but the Corps acknowledges that "the extent of fish movement through the box culverts (especially in the New Madrid Floodway) is unknown," 2002 RSEIS at 74. The agency's inability to estimate the expected impact on fish access does not relieve it of its obligation to incorporate expected reductions in access to its mitigation calculations and insure the scientific integrity of its analysis. 40 C.F.R. § 1502.24.

The Corps' response to these concerns is that the floodplain is home to a diverse range of fish, not all of which travel to the floodplain during mid-season periods of high flooding, and that the reduction in fish access is therefore insignificant. 2006 RSEIS at 121, 360-62. The Corps does not quantify this assertion, however, nor does it dispute the proposition that it is precisely during the mid-season when most fish travel to the floodplain to reproduce. The agency's failure to incorporate known access issues into its mitigation calculation and to identify evidence supporting its determination that reduced access will be insignificant amounts to a failure to present a "complete analytic defense of its [habitat] model," Sierra Club v. Costle, 657 F.2d 298, 333 (D.C. Cir. 1981) (internal quotations omitted) *rev'd on other grounds*, 463 U.S. 680 (1983). This omission violates NEPA (requiring "scientific

integrity" in environmental impact statements, 40 C.F.R. 1502.24), and undermines the Corps' conclusion that the project complies with CWA (mandating "appropriate and practicable steps . . . [to] minimize potential adverse impacts . . . on the aquatic ecosystem," 40 C.F.R. 230.10(4)).

2. Habitat value assigned to the "sump area"

The Corps intends to make up for most of the environmental impacts caused by the levee closure by closing the levee gates for longer periods of time, in order to prolong flooding in the 2,000-plus acre "sump" of undrained wetlands. Under existing conditions, this area floods when the river rises. The agency has long planned to leave water in the sump area each spring. Under the old plan, however, the Corps would close the gates to prevent flooding beyond the sump area when river water levels were high, and open the gates to let water retreat from the floodplain when river levels were low. In its 2006 RSEIS, the Corps announces a plan to retain water in the sump area by keeping the gates closed during the middle of the spawning season until May 15, even if river levels drop, 2006 RSEIS at 120-125, table 5.7, allowing "fish that have accessed the floodplain [prior to high water levels]" to reproduce, id. at 121. The Corps claims that, simply by keeping the levee gates closed for longer periods of time, it can extend flooding and make up for the enormous mitigation gap that prompted the voluntary remand and the creation of the 2006 RSEIS. Id. at 120-25.

This extended flooding will increase fish habitat quantity, but the record reflects that the increase will be slight. The Corps does not seriously dispute this assessment: in its 2006 RSEIS, it confirms that the new plan will increase flooding in the sump area from an average of 20.5 average annual flooded days to a maximum of 32.9 average flooded days, depending on how the plan is executed. See 2006 RSEIS at 394, affirming data of Dr. Bohlen. During years in which the sump area would be flooded throughout the mid-season without the gate manipulation, the plan will not extend flooding in the sump area at all. Id. So, if the increase in flooding resulting from the extended closure is minimal, how does it account for 97 percent of the levee project mitigation (which could be achieved through reforestation only with the acquisition of an additional 124,000 acres at a cost of $200 million)? The answer is that, with of this modest extension in average flooding, the Corps has given itself permission to change the nomenclature of the "sump area," now calling it a "spawning and rearing pool," which, *mutatis mutandis*, now becomes a "permanent water body." 2006 RSEIS at 79. Permanent water bodies are assigned much greater habitat value under the HEP model.

This change is essentially word play. The HEP model does assign greater mitigation value to permanent water bodies, but the decision to call seasonally flooded land such as a sump area a permanent water body is unsupported in the record. The

2006 RSEIS lists several features that the sump area shares with PWBs, see 2006 RSEIS at 79-80, but it fails to explain how the sump area meets the primary qualifier for this class of waterbodies: that it be "permanent." One HEP team member, Dr. Jane Ledwin of the FWS, explained that the HEP team understood the PWB category as including only those areas that hold water permanently and have seasonal connectivity to the river. See email of Jane Ledwin, attached to Plaintiffs' MSJ [87] as Ex. 110 at 1478; see also, Declaration of Dr. Richard Sparks, attached to Plaintiffs' MSJ [87] as Ex. 116 at 1569-70 (discussing Ledwin's opinion). The HEP model developed by the interagency team did not even include the category of "spawning and rearing pools" -- a category that appears to have been created in the 2006 RSEIS for the specific purpose of increasing the mitigation numbers.

The agency's inflation of sump area value in the HEP model grossly overstates the total value of the proposed mitigation. This overstatement is not attributable "to a difference in view or the product of agency expertise," as the agency expressly relied upon the HEP team for expertise in this area but found no support from the team for this spike in the habitat value of the sump area, even in years when flooding is not extended and fish access is reduced. State Farm, 463 U.S. at 43; Am. Wetlands v Norton, 193 F. Supp. 2d 244, 248 (D.D.C. 2002) (reversing decision of FWS as "not supported by the best

available scientific data"); Defenders of Wildlife v. Babbitt, 958 F. Supp. 670, 685 (D.D.C. 1997) (declaring FWS action arbitrary and capricious when the analysis of its own experts). The distorted calculation – which supported 97 percent of the Corps' levee mitigation – reflects a "clear error of judgment" in violation of the APA. Volpe, 401 U.S. at 416.

3. Two-year floodplain

Another way in which the Corps arbitrarily manipulated the HEP model to achieve full mitigation within a fixed budget was by limiting its calculation of habitat loss to the two-year floodplain. The two-year floodplain - land that floods every two years, on average - accounts for 27,000 habitat acres within the project area, while the three-year floodplain constitutes approximately 50,000 habitat acres, and as many as 130,000 acres are flooded far less frequently. Joint Statement of Issues before the Missouri Clean Water Commission, attached to Plaintiffs' MSJ [87] as Ex. 8 at 108.

In considering impacts to the fisheries resource under the CWA, the Corps determined that the project life was 50 years and that long-term fish population trends were therefore the most appropriate focus of its mitigation efforts. The Corps further determined that the two-year floodplain was the most important habitat sustaining the long-term population trends of small fish with life spans of between 2 and 3 years. That reasoning is disputed, but the dispute presents a battle of experts -- a

battle conducted in an arena that is off limits to APA judicial review.

The experts are in agreement, however, that the three-year floodplain provides habitat that can boost the long-term population of larger fish with longer lives, and that the short-term population of smaller fish with shorter life spans can benefit from significant but less frequent flood events. Declaration of Dr. Sheehan, attached to Plaintiffs' MSJ [87] as Ex. 33 at 578; Killgore Dep., attached to Plaintiffs' MSJ [87] as Ex. 21 at 376-80; 2006 RSEIS at 70-73. Land that floods an average of once every three years, if included in the HEP team model, would be discounted to reflect its less frequent innundation. The decision to leave it out of the calculation entirely, despite its acknowledged role in boosting fish population and against the recommendations of FWS and Missouri Department of Conservation HEP team members, arbitrarily manipulates the model.

This omission enabled a reduction in the proposed mitigation and compromised the agency's finding of full mitigation. The agency cannot reliably conclude that the selected project has minimized adverse impacts on aquatic ecosystems to the extent practicable when its habitat mitigation calculations are infected with an underestimate of the floodplain habitat impacted. 40 C.F.R. § 230.10(d); see Ohio Valley Envtl. Coalition v. United States Army Corps of Eng'rs, 479 F. Supp. 2d

607, 627 (D. W. Va. 2007) ("[u]nless the effects of the activity are properly identified, the agency has not met its legal obligation and any proposed mitigation measures dependant upon an incomplete environmental impact analysis necessarily fail[;]") (appeal pending). The finding of full mitigation in spite of this omission was arbitrary and capricious.

4. Borrow pits and connectivity

The Corps has always planned to excavate 387 acres of "borrow pits" to collect levee material, but only recently did it decide to convert these borrow pits into floodplain ponds, to mitigate destruction of fish habitat. 2006 RSEIS at 37. These 387 acres of "permanent ponds," indeed, now make up the entire 83 percent mitigation gap in the St. Johns Basin. The Corps submits that borrow pits accessible to fish during the spawning and rearing season can appropriately compensate for the loss of seasonally-connected permanent water bodies in the floodplain. Defendants' MSJ [92] at 22.

Since floodplain ponds do hold water year-round, labeling the borrow pits "permanent water body habitat" is appropriate. The Corps misuses the HEP model, however, when it quantifies the mitigation value of borrow pit habitat more liberally than that of permanent water body habitat lost to the project. When it calculated project impacts on habitat provided by a permanent water body such as a backwater lake, the Corps discounted the result to account for the percentage of the mid-

season when the lake is flooded by - connected to - the river.[8] See Declaration of Dr. Bohlen, attached to Plaintiffs' MSJ [87] as Ex. 111 at 1490. When calculating the mitigating impact of the 387 acres of borrow pits, however, the Corps applied no discount for connectivity, even though backwater flooding occurs during an average of only 27 percent of the mid-season in the areas where the borrow pits will likely be located. 2006 RSEIS at 115.

The Corps justifies this apparent discrepancy by explaining that the project impact and the project mitigation in this instance require different treatment under the model. In both instances, the value assigned to the PWBs accounted for the fact that the PWBs provide some habitat year round, and connectivity was taken into consideration. In the case of project impact, the Corps argues, the only impact is the loss of the backwater flooding since the PWBs remain viable habitat, but, in the case of the borrow pits, not only are the pits viable habitat year round, but the occasional connection to the river enhances their habitat value.

There would be nothing artificial about this approach if the model actually assigned value to PWBs in the project area

[8]In other words, a 50 acre permanent water body would receive 50 acres under the model if it was typically flooded throughout the mid-season. However, if, on average, it was flooded by the river only 20 percent of the mid-season before project construction, the Corps' model would reduce its value by 80 percent, so, if the project disconnected the water body from the river altogether, the loss would be valued at 10 acres.

independent of their connection to the river. However, the Corps' model assigns no habitat value to PWBs when they are not connected to the river. The agency's discrepant treatment of project impact and project mitigation in this area was therefore unsupported by the record and "internally inconsistent," undermined the conclusion that project impacts are minimized to the extent practicable as required by the CWA, and violated NEPA's regulation mandating the scientific integrity of environmental impact statements. Air Transp. Assn. v. DOT, 119 F.3d 38, 43 (D.C. Cir. 1997).

5. Borrow pits and diversity

The HEP model reduces all habitat types to fungible "habitat units," but this approach has limits: different species of fish require different sorts of habitat. The Corps, resource agencies, and other interested parties agree that, for the sake of diversity, "borrow pits [are] appropriate only to mitigate for losses of permanent water bodies" and should not be used as a substitute for other types of water bodies, such as seasonal wetlands, that provide habitat for other species. 2006 RSEIS at 227. The Corps denies that it has relied exclusively on borrow pits for mitigating impacts to the St. Johns Basin fisheries, but it dodges the question of the extent of its reliance, and it does not challenge plaintiffs' contention that the borrow pits account for 83 percent of the mitigation in the St. Johns Basin project area. The Corps does not argue that 83 percent of the lost

habitat that requires mitigation is in the form of permanent water bodies, and it has identified no record evidence supporting its assertion that the borrow pits only mitigate the loss of PWBs. The result is a failure to produce a "complete analytic defense of its model," Costle, 657 F.3d at 333 (internal quotations removed). This failure further undermines the required finding of compliance with the Clean Water Act §404(b) regulations, which prohibit projects that substantially degrade the waters of the United States and mandate mitigation to the extent practicable, and it is in conflict with the NEPA mandate of scientific integrity in environmental impact statements.

6. The Corps' plan to modify mitigation as necessary

NEPA does not require "a complete mitigation plan [to] be actually formulated and adopted" in an agency's environmental impact statement. Robertson, 490 U.S. at 352. The public is nevertheless entitled to an accurate EIS that indicates whether a project's environmental impacts "can be fully remedied by, for example, an inconsequential public expenditure, [or whether they will be] only be modestly ameliorated through the commitment of vast public and private resources." Id. In defending its mitigation calculation, the Corps repeatedly assures the Court that its mitigation team will implement, monitor, and adjust mitigation techniques so as to balance the project's twin aims of flood control and environmental protection. If such assurances were allowed to paper over the flaws in the Corps' mitigation

analysis, however, they would effectively gut the environmental safeguards that Congress enacted in the CWA and NEPA.

7. Fish Mitigation: Conclusion

The Corps' manipulation of its habitat model in analyzing fish mitigation gives new meaning to the phrase "result-oriented decision-making." The Corps has obviously worked backwards from the mitigation dollars it could afford, tweaking several of its original, fundamental understandings of its mitigation obligations so as to make the project appear to return a positive benefit-cost ratio. Many mitigation decisions seem to have been based on cost alone, with a troubling disregard for the fundamental assumptions of the HEP team model and HEP team member judgment. Several elements discussed above lack factual support or substantial evidence, but, more disturbingly, the Corps has demonstrated its willingness to do whatever it takes to proceed with this project - change definitions, abandon core assumptions - even if it means ignoring serious environmental impacts. The Corps' conclusion that its proposal would fully mitigate adverse impacts on fisheries was neither "rational [nor] based on consideration of the relevant factors." Ethyl Corp., 541 F.2d at 36. Exclusions from and manipulations of the HEP model infected the 2002 RSEIS and 2006 RSEIS with scientifically unsound analyses in violation of NEPA and prevented a reliable conclusion that the project satisfies the

CWA. For these reasons, the agency's deficient fish mitigation proposal is arbitrary and capricious in violation of the APA.[9]

Plaintiffs' Waterfowl Mitigation Challenges Fail

Plaintiffs contend that the Corps had no expert support for its total reliance on the model designed for estimating environmental impacts on waterfowl ("the WAM model"). The Corps' waterfowl biologist Rumancik stated in a deposition that the Corps relied on FWS expertise in this area and admitted that he had no personal understanding of the model's intricacies. See Deposition of John Rumancik, attached to Plaintiffs' MSJ [87] as Ex. 22 at 410-433, 443. When asked if anyone in the Corps had a more extensive background in waterfowl mitigation, he responded in the negative, noting that "no one in the Corps has really [sic] waterfowl background." Id. at 443. The FWS explicitly told the Corps that it should not rely entirely on the WAM model, since it only looks at one element of waterfowl mitigation: ducks feeding in water no deeper than two feet, see Bruce Dugger's Assessment of Waterfowl Mitigation, attached to Plaintiffs' MSJ [87] as Ex. 109 at 1476; see also, 2002 RSEIS at E-139. The plaintiffs therefore submit that there is no battle of experts here, as all the experts relied upon agree that this model should not be used for mitigation.

[9]Plaintiffs' other arguments about the Corps' mitigation plan - that the Corps reneged on its earlier acceptance of responsibility for mitigating fish habitat beyond the mid-season; and that the Corps' mitigation plan violates the RHAA by falsely claiming full fish mitigation - are rejected.

Plaintiffs also identify a math error in defendants' application of the waterfowl model: the acreage needed for waterfowl mitigation was not discounted for the frequency and depth of flooding. Plaintiffs demonstrate that, while the Corps' calculation indicated that 891 total acres were needed for waterfowl mitigation, in fact, to mitigate for harms to waterfowl habitat, the Corps needs to reforest enough total acreage so that 891 acres are flooded an average of less than two-feet in February and March. Declaration of Bruce Dugger, attached to Plaintiffs' MSJ [87] as Ex. 94 ¶¶ 6-19; email from Jane Ledwin to Bruce Dugger, attached to Plaintiffs' MSJ [87] as Ex. 108. The Corps argues that, even if it committed this error, the error was harmless. Defendants' MSJ [92] at 32. Since 700 acres will be purchased for shorebirds to occupy in April and May, and since there will be continual flooding in February and March, the Corps argues that there will be more than enough waterfowl mitigation to offset impacts. Plaintiffs point out, however, that the waterfowl model doesn't work for continually flooded areas, because waterfowl quickly exhaust their food supply. If the area is flooded continually, the benefits will be lost.

The agency's defense of its waterfowl mitigation plan is complicated and unclear. The 2006 RSEIS, however, shows that the Corps consulted with two additional waterfowl experts in developing its waterfowl mitigation plan. These consultations undermine plaintiffs' argument that the agency relied entirely on

the FWS for wildlife expertise and therefore lacked any expert support for its waterfowl mitigation design. Since "agency determinations based upon highly complex and technical matters are entitled to great deference," the court will not disturb the Corps' waterfowl mitigation plan. Appalachian Power Co. v. EPA, 249 F.3d 1032, 1051-52 (D.C. Cir. 2001) (internal quotations omitted).

The Corps' Alternatives Analysis was Sufficient

A central declared purpose of the combined projects is to alleviate flooding, and, by doing so, to promote economic development in East Prairie. East Prairie is a small town located on the St. Johns side of the impacted project area; its economic development has been significantly stunted by the heavy flooding it experiences every ten years. See 2002 RSEIS at B-18.

In 1995, East Prairie became eligible for economic development aid from the United States Department of Agriculture, after the federal government designated it an "enterprise community." The enterprise community program was designed to "afford communities real opportunities for growth and revitalization." Enterprise Community Fact Sheet, attached to Plaintiffs' MSJ [87] as Ex. 43 at 641. In 1996, Congress authorized the use of East Prairie's enterprise funds to cover most of the local cost-share for the pump stations and channel work. Water Resources Development Act of 1996, Pub. L. No. 104-303, § 331, 110 Stat. 3658, 3718. This legislative action

was influenced by assurances from the Corps and from local officials that the project would reduce or eliminate flooding in East Prairie and clear the way for economic development. See Aug. 19, 1995 letter from John Ashcroft and Christopher Bond to President Clinton, attached to Plaintiffs' MSJ [87] as Ex. 17 at 274 (". . . East Prairie officials were told by the Corps the project could be trimmed to two elements, which would eliminate flooding in and around East Prairie").

In plaintiffs' submission, the projects will do very little to address the flooding problems plaguing East Prairie. At least one Corps economist admits that the project will not result in any significant economic development in East Prairie, presumably because, although the project will alleviate overflow from a local stream that infrequently floods a small eastern part of the town, it will do nothing to address the 10-year flood, which is caused by poor drainage and agricultural runoff from the north. See Plaintiffs' MSJ [87], citing the Deposition of Corps Economist Bobby Learned, attached as Ex. 15 at 179; 2002 RSEIS at B-18. During the 10-year flood, 19 miles of East Prairie's roads are under water, 2002 RSEIS at B-18, and these roads will remain under water during the 10-year flood, even after project completion.

Plaintiffs may well be right, that the Corps rejected alternative plans that really would have alleviated East Prairie's flooding problems. They may even be right, that a ring

levee system around East Prairie, combined with channel improvements to assist with drainage, would have been preferable in some respects. But plaintiffs have not demonstrated that the Corps' rejection of a ring levee system or of other alternatives "suggest[s] a lapse of rational decisionmaking," Achernar Broadcasting Co. v. FCC, 62 F.3d 1441, 1447 (D.C. Cir. 1995), nor have they demonstrated that the Corps' failed to conduct the public interest review mandated by § 404 of the CWA and § 10 of the Rivers and Harbor Act. The alternatives analysis was therefore legally sufficient.

Exclusions from the Benefit-Cost Analysis

If a benefit-cost test is used to evaluate a proposed project, NEPA requires the agency to include that test in its environmental impact statement. 40 C.F.R. § 1502.23. The benefit-cost test is therefore subject to the NEPA regulations regarding accuracy and scientific integrity. 40 C.F.R. § 1502.24. Plaintiffs challenge the scientific integrity of defendant's benefit-cost test. First, they contend that, in the benefit-cost analysis performed by defendants, the Corps improperly attributed agricultural benefits to crop production on land which, after project implementation, will be transformed into project mitigation acreage and will no longer yield crops. Second, they charge that the Corps omitted from its cost calculation the expense attributable to levee and earth-moving work in the reforested areas. Third, they argue that the Corps

failed to include the costs of wildlife corridor and buffer strips in its cost calculation.

The Corps, in its 2002 RSEIS, acknowledged that it cannot claim agricultural crop benefits on mitigation land. 2002 RSEIS at M-72. Nevertheless, in its 2002 RSEIS, it declined to subtract roughly 7,000 mitigation acres from its benefit computation on the grounds that the exact location of the mitigation acres was unknown. Id. In the 2006 RSEIS, however, the Corps indicated that this mitigation acreage will be located within the impacted project area: 1,293 cropland acres will be within the St. Johns Bayou Basin and 4,126 cropland acres will be within the New Madrid Floodway. 2006 RSEIS at vii. In addition, the transformation of borrow pits will remove an additional 387 acres of cropland from the St. Johns Basin, id. at viii, and at least an additional acreage from the sump areas, id. at 55-56.

The Corps explains this apparent omission from the benefit-cost analysis by noting its intent to seek mitigation acreage that will "receive significant flooding" even after project construction. Defendant's MSJ [92] at 66. The acquisition, they contend, will therefore have a "minimal effect" on the benefit-cost ratio, since most of the acreage obtained for mitigation will be frequently flooded land that is presently unavailable for farming much of the time and will not trigger a significant reduction in project benefits. Id. at 67. The Corps is entitled to deference on its claim that, because it intends to

obtain mitigation acreage in areas that will remain flooded after the project is constructed, the reduction in benefits will be slight and may be excluded from the benefit-cost test.

Additionally, plaintiffs note that the Corps omitted from its cost calculation the expense attributable to levee and earth-moving work in the reforested areas. The Corps acknowledges this omission, but rejects plaintiffs' assertion that these costs will be significant, since the Corps plans to focus "on more natural hydrology," while plaintiffs' cost estimates are based on projects involving complicated, expensive engineering structures. Defendants' MSJ [92] at 67. The cost issue is a disputed issue of fact, but the determination that the expense will be minimal appears reasonable in light of the Corps' plans and considerable experience designing such mitigation.

Lastly, the Corps' estimate of costs relating to the wildlife corridor and buffer strips appears to be conservative. However, the Corps submits that it may seek a permanent conservation easement for the associated land rather than purchasing the land outright. The Corps is under no obligation to include costs in its calculation that it may not incur, and the benefit-cost test cannot be invalidated on such speculative grounds.

Plaintiffs have not Demonstrated Standing to Raise WRDA Claims

The Corps argues that plaintiffs lack standing to challenge violations of the 1986 WRDA cost-sharing requirement because they are not within the "zone of interests" protected by the statutory provision they invoke and because their injury is not fairly traceable to the Corps' failure to require local cost-sharing. Defendants raise the same objections to plaintiffs' standing to challenge the adoption of the 1954 discount rate in the benefit-cost analysis under the 1974 WRDA.

In my earlier ruling on plaintiffs' motion for a preliminary injunction, I found that plaintiffs had demonstrated a substantial likelihood of success on their claim under the 1974 WRDA, but that was before the standing arguments were fully briefed. One may marvel at the Corps' reliance on an archaic discount rate to pass its benefit-cost test, and one is only somewhat less flummoxed by the Corps' tortured interpretation of the "separable element" provision in the 1986 WRDA, 33 U.S.C. § 2213, but plaintiffs have not succeeded in locating themselves with the "zone of interests" of either statutory provision. See National Wildlife Fed'n v. Westphal, 116 F. Supp. 2d 49, 54 (D.D.C. 2000). In any event, Congress was apparently neither surprised nor flummoxed by the Corps' legerdemain and authorized expenditures for this project.

Conclusion

The project at issue in this case has been controversial for many years. It is not the role of this court to determine whether the project is wise or worthwhile, but it is the court's responsibility to decide whether or not the agency's decisions, approving and justifying the project, were arbitrary and capricious in violation of applicable laws. For the reasons discussed above, I have determined that, at least with respect to the environmentally important issue of fish mitigation, they were. The agency acted arbitrarily and capriciously in violation of the APA, the CWA, and NEPA in finding that its plan would fully mitigate impacts to fisheries habitat.

Plaintiffs' motion for summary judgment will accordingly be **granted**, and defendant's 2002 RSEIS, 2006 RSEIS, and 2006 ROD will be set aside. The Corps will be enjoined from proceeding with the project, and it will be ordered to deconstruct that portion of the project which it has already built. An appropriate order accompanies this memorandum.

JAMES ROBERTSON
United States District Judge