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MUDSLINGING ON THE MISSOURI: CAN ENDANGERED SPECIES SURVIVE THE CLEAN WATER ACT?

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MUDSLINGING ON THE MISSOURI: CAN ENDANGERED SPECIES SURVIVE THE CLEAN WATER ACT?

*Sandra Zellmer**

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I. INTRODUCTION

Water quality regulations typically focus on chemical and bacterial pollutants, such as pesticides, detergents, industrial wastes, and sewage. Far less attention has been paid to the flow and function of sediments, known to most of us as mud. Sediments, however, are just as important to the ecological integrity of many rivers as the quality and quantity of the water itself. On big inland rivers like the Missouri, Mississippi, and Colorado Rivers, sediments are essential to the formation of sandbars, islands, oxbows, and floodplains, which in turn provide habitat for native fish, wildlife, and invertebrate species. Also, sediments carried by the Missouri River downstream through the Mississippi River play a role in creating and maintaining the coastal wetlands of the Mississippi Delta.

But sediment is also a pollutant under the Clean Water Act (CWA).¹ Sediments can smother and destroy spawning and foraging areas. They can carry

* Law Alumni Professor of Natural Resources Law, University of Nebraska College of Law. The author thanks Professor Anthony Schutz for the invitation to speak on this topic at the 2010 American Agricultural Law Association conference and the American Bar Association for the invitation to speak at its 2011 Water Law Conference. This article is based on the ABA conference paper, *Mudslinging on the Missouri and Mississippi Rivers*,

excess nutrients from agricultural and urban runoff, causing algae blooms, hypoxia, and other adverse conditions.

Conflicts over the dual nature of sediment came to a head in the Missouri River basin in 2008 when the State of Missouri refused to issue a CWA 401 Certification for the Army Corps of Engineers' habitat restoration projects.² The state ordered the Corps to stop discharging sediments into the Missouri River, stating that such discharges would violate the state's water quality standards.³ Caught between a rock—the State of Missouri—and a hard place—a biological opinion (BO) compelling habitat restoration to prevent jeopardy to endangered species—the Corps turned to the National Academy of Sciences for advice.

The Academy, known as the “most prestigious national entity for scientific research” and as “the Supreme Court of Science,”⁴ employed its research branch, the National Research Council (NRC), to address the conundrum. The NRC convened a special Committee on Missouri River Recovery and Associated Sediment Management Issues.⁵ This committee was comprised of ecologists, hydrologists, geographers, biologists, geologists, geomorphologists, and engineers, with an economist and a lawyer thrown in for good measure.⁶ The committee met in various places throughout the basin five times over the course of the next two years.⁷ It finalized and issued its report titled *Missouri River Planning: Recognizing and Incorporating Sediment Management* on September 28, 2010.⁸ The report analyzed the role of sediment in the Missouri River, both before and after the six mainstem dams were constructed on the system in the mid-twentieth century.⁹ It evaluated the efficacy of current habitat restoration strate-

www.americanbar.org/content/dam/aba/events/environment_energy_resources/bp_201102-wl_sandra-zellmer.authcheckdam.pdf.

1. 33 U.S.C. § 1362(6) (2006).

2. See COMM. ON MO. RIVER RECOVERY & ASSOCIATED SEDIMENT MGMT. ISSUES, NAT'L RESEARCH COUNCIL, *MISSOURI RIVER PLANNING: RECOGNIZING AND INCORPORATING SEDIMENT MANAGEMENT* 65 (2011), available at http://www.nap.edu/catalog.php?record_id=13019 [hereinafter 2011 REPORT] (click “Download Free PDF”).

3. *Id.*

4. Reed D. Benson, “*The Supreme Court of Science*” *Speaks on Water Rights: The National Academy of Sciences Columbia River Report and Its Water Policy Implications*, 35 ENVTL. L. 85, 99 (2005).

5. 2011 REPORT, *supra* note 2, at vii.

6. *Id.* at v, 147-52. The author served on the committee, but the viewpoints expressed here and any errors are my own.

7. *Id.* at 2.

8. Press Release, Nat'l. Acad. of Sci., Understanding Missouri River's Sediment Dynamics Key to Protecting Endangered Species, Setting Water Quality Standards, Says New Report (Sept. 28, 2010), available at <http://www8.nationalacademies.org/onpinews/newsitem.aspx?RecordID=13019>.

9. 2011 REPORT, *supra* note 2, at 1-3.

gies and explored sediment management alternatives.¹⁰ In the end, the report concluded that sediments are an essential component of the Missouri River ecosystem, but that a better understanding of sediment transport processes and deposition is critical for achieving management objectives—specifically, the protection of both endangered species and water quality.¹¹ The Committee also concluded that more effective federal and state coordination is essential for setting appropriate water quality standards for an interstate river system historically rich in sediment.¹²

This Article analyzes the perceived conflict between the CWA's demand for clean water, which in some, but not all, cases means *clear* water, and the “no jeopardy” requirement of the Endangered Species Act (ESA),¹³ and determines that the two statutes are not in conflict at all. Under the CWA, water quality managers are tasked with creating standards that promote a river's uses.¹⁴ Native species habitat is one use that must be protected under the CWA,¹⁵ just as it must be protected under the ESA.¹⁶ Water quality standards should promote that use by recognizing that the Missouri River, and others like it, historically carried far greater quantities of sediments than are present today, and that the species which have evolved in a sediment-rich environment require sediment delivery to continue at the proper time, place, and manner. BOs issued under the ESA should, therefore, guide federal and state water quality managers in setting and approving water quality standards.

10. *Id.* at 2-3.

11. *See id.* at 3-4, 8, 12.

12. *See id.* at 12.

13. 16 U.S.C. § 1536(a)(2) (2006); 50 C.F.R. § 402.14(g)(4) (2010); *see generally* 16 U.S.C. § 1531 (2006) (listing findings, purposes, and policy declarations for the ESA).

14. 33 U.S.C. § 1313(c) (2006).

15. 33 U.S.C. § 1251(a)(2) (2006).

16. § 1531(b).

II. THE MISSOURI RIVER SAGA¹⁷

The Missouri is the longest river in North America and the second largest tributary (by volume) of the granddaddy of all American rivers—the Mississippi.¹⁸ The Missouri River travels approximately 2,600 miles from its source in Montana to its mouth near St. Louis,¹⁹ draining over 500,000 square miles of land in ten states and one Canadian province.²⁰ Historically, this meandering, braided river was subject to periodic and often extreme flooding that kept the connections between the main channel, its tributaries, and its broad floodplain alive.²¹ Never static, the river experienced dramatic shifts in turbidity and sediment loading throughout the seasons.²² It also played a major role in transporting sediment from the interior uplands of the United States and southern Canada to the Mississippi River and the Gulf of Mexico. Before 1900, the river transported 400 million metric tons of sediment per year to the Gulf.²³ Today it transports less than half of that amount.²⁴

Studies of remnant floodplains help us visualize conditions as they were two hundred years ago: “a mosaic of aquatic, riparian, and terrestrial communities, including oxbow lakes, ponds, marshes, sand dunes, shorelines, in-channel

17. For further discussion see Sandra B. Zellmer, *A New Corps of Discovery for Missouri River Management*, 83 NEB. L. REV. 305 (2004). Additionally, for details on Missouri River history, development, and litigation, see JOHN E. THORSON, *RIVER OF PROMISE, RIVER OF PERIL: THE POLITICS OF MANAGING THE MISSOURI RIVER* (1994); Sandra Zellmer, *Missouri River Basin, in WATERS & WATER RIGHTS* (Robert E. Beck ed., 3d ed. 2009); John H. Davidson & Thomas Earl Geu, *The Missouri River and Adaptive Management: Protecting Ecological Function and Legal Process*, 80 NEB. L. REV. 816 (2001); John P. Guhin, *The Law of the Missouri*, 30 S.D. L. REV. 347 (1985); John R. Seeronen, *Judicial Challenges to Missouri River Mainstem Regulation*, 16 MO. ENVTL. L. & POL'Y REV. 59 (2009); A. Dan Tarlock, *The Missouri River: The Paradox of Conflict Without Scarcity*, 2 GREAT PLAINS NAT. RESOURCES J. 1 (1997).

18. U.S. ARMY CORPS OF ENG'RS, SUMMARY, MISSOURI RIVER: FINAL ENVIRONMENTAL IMPACT STATEMENT 6 (2004), available at <http://www.nwd-mr.usace.army.mil/mmanual/Summary.pdf>.

19. *Id.*

20. U.S. BUREAU OF RECLAMATION, BASIN REPORT: MISSOURI RIVER, available at <http://www.usbr.gov/climate/SECURE/docs/missouribasinfactsheet.pdf> (last updated Apr. 25, 2011).

21. COMM. ON MO. RIVER ECOSYSTEM SCI., NAT'L RESEARCH COUNCIL, THE MISSOURI RIVER ECOSYSTEM: EXPLORING THE PROSPECTS FOR RECOVERY 56 (2002), available at <http://www.nap.edu/openbook.php?isbn=0309083141> [hereinafter 2002 REPORT].

22. *Id.*

23. Mark Schleifstein, *Missouri River Helped Build Louisiana Coast, but It Won't Help Restore It*, TIMES-PICAYUNE, Sept. 29, 2010, http://www.nola.com/politics/index.ssf/2010/09/missouri_river_helped_build_lo.html.

24. *Id.*

islands, sand bars, forests, and agricultural fields.”²⁵ The river’s native species evolved under these conditions, and they continue to need flood pulses, high turbidity, and large volumes of sediment. But modern dams and bank stabilization projects have significantly reduced volumes of sediment transported through the system, lowered the river’s bed through degradation, flattened the hydrograph, reduced turbidity, and changed landforms and other essential habitat features.

Today, three Missouri River species—the least tern,²⁶ the piping plover,²⁷ and the pallid sturgeon²⁸—are listed as threatened or endangered under the ESA. As of 2003, the piping plover population on the Missouri consisted of about 2000 birds, while the tern population hovered around 7000.²⁹ The sturgeon’s plight is even more grim. Although population estimates vary, there may be only a few thousand wild pallid sturgeon alive in the United States, primarily in the Missouri and Atchafalaya Rivers, leaving the sturgeon “on the brink of extinction.”³⁰ The listing decision for the sturgeon explained that “damming, channelization, altered and/or degraded water quality, and altered flow regimes” had been extremely detrimental to the fish.³¹

What prompted these dramatic changes?

The Dust Bowl years of the 1930s devastated the economies of the Missouri River states, which were and are heavily reliant on agricultural products.³² The dry years were followed by a series of devastating floods on the lower Missouri.³³ The federal government and the states of Iowa, Nebraska, Kansas, and Missouri believed that mainstem dams and reservoirs could provide protection for the population centers and farms of the lower basin.³⁴ Large public works

25. 2002 REPORT, *supra* note 21, at 79.

26. *Species Profile: Least Tern*, U.S. FISH & WILDLIFE SERV., <http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B07N> (last updated May 18, 2011).

27. *Species Profile: Piping Plover*, U.S. FISH & WILDLIFE SERV., <http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=B079> (last updated May 18, 2011).

28. *Species Profile: Pallid Sturgeon*, U.S. FISH & WILDLIFE SERV., <http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spcode=E06X> (last updated May 18, 2011).

29. *Am. Rivers v. U.S. Army Corps of Eng’rs*, 271 F. Supp. 2d 230, 259 (D.C. Cir. 2003).

30. *Id.*; see also Int’l Union for Conservation of Nature & Natural Res., *Scaphirhynchus Albus*, IUCN RED LIST OF THREATENED SPECIES, <http://www.iucnredlist.org/apps/redlist/details/19940/0> (last visited May 19, 2011) (providing more recent estimates on the sturgeon population).

31. Endangered and Threatened Wildlife and Plants; Determination of Endangered Status for the Pallid Sturgeon, 55 Fed. Reg. 36,641, 36,646 (Sept. 6, 1990) (codified as amended at 50 C.F.R. § 17.11(h)).

32. See JOHN R. FERRELL, *BIG DAM ERA: A LEGISLATIVE AND INSTITUTIONAL HISTORY OF THE PICK-SLOAN MISSOURI BASIN PROGRAM 1-2* (1993).

33. *Id.* at 8-9.

34. See *id.* at 3.

projects had the added benefits of generating economic activity and employing soldiers and engineers returning from World War II.³⁵

The Flood Control Act of 1944³⁶ authorized the addition of five main-stem dams to the existing dam at Fort Peck, Montana.³⁷ The Corps was given control over dams and reservoirs on the river's mainstem for flood control and navigation purposes, while the Bureau of Reclamation was charged with promoting irrigation through projects primarily on the tributaries.³⁸ Meanwhile, the 1945 Rivers and Harbors Act³⁹ authorized the conversion of the downstream portion of the river, south of Sioux City, Iowa, into a nine-foot channel to enhance commercial navigation.⁴⁰

The system is regulated through the Corps' Master Water Control Manual (Master Manual) along with Annual Operating Plans each year.⁴¹ The Master Manual is part of a "catalog of principles" for managing the Missouri River.⁴² It was initially issued in 1960 and subsequently revised four times, with the most recent revision issued in 2004.⁴³

The longest-lasting version of the Master Manual, in effect from 1979 through 2004, directed sequential consideration of various interests as follows:

- 1) flood control;
- 2) irrigation and upstream beneficial uses;
- 3) downstream water supply;
- 4) navigation and power; and
- 5) recreation and wildlife.⁴⁴

35. *Id.* at 2-3; THORSON, *supra* note 17, at 17.

36. Flood Control Act of 1944, ch. 665, 58 Stat. 887 (codified as amended in scattered sections of 16, 33, and 43 U.S.C.).

37. BUREAU OF RECLAMATION, U.S. DEP'T OF THE INTERIOR, AN OVERVIEW OF THE PICK-SLOAN MISSOURI RIVER BASIN PROGRAM 7, 10 (2010), *available at* http://www.usbr.gov/gp/pick_sloan_overview.pdf.

38. ETSI Pipeline Project v. Missouri, 484 U.S. 495, 512 n.7 (1988) (quoting S. DOC. No. 78-247, at 1 (2d Sess. 1944)).

39. Rivers and Harbors Act of 1945, ch. 19, 59 Stat. 10.

40. Zellmer, *supra* note 17, at 314.

41. 33 C.F.R. § 222.5(g) (2010).

42. See John H. Davidson, *Indian Water Rights, the Missouri River, and the Administrative Process: What Are the Questions?*, 24 AM. INDIAN L. REV. 1, 1 (2000) (explaining that government materials such as the Master Manual are a component of the legal framework, or the catalog of principals, that governs the allocation and management of river water).

43. U.S. ARMY CORPS OF ENG'RS, MISSOURI RIVER MAINSTEM RESERVOIR SYSTEM MASTER WATER CONTROL MANUAL: MISSOURI RIVER BASIN I-3 (2004), *available at* <http://www.nwd-mr.usace.army.mil/rcc/reports/mmanual/MasterManual.pdf> [hereinafter 2004 MASTER MANUAL].

44. U.S. ARMY CORPS OF ENG'RS, MISSOURI RIVER MAIN STEM RESERVOIR SYSTEM RESERVOIR REGULATION MANUAL: MASTER MANUAL, at IX-1 to IX-2 (1979), *available at* <http://>

As for the last item, the 1979 Manual stated, “[I]nsofar as possible without serious interference with the foregoing functions, the reservoirs will be operated for maximum benefit to recreation, fish and wildlife.”⁴⁵ The 2004 version omitted the priorities provision, and instead strove to maintain maximum discretion and flexibility for the Corps.⁴⁶

When the Corps began to craft the revisions that eventually resulted in the 2004 Manual, it quickly became obvious that few were happy with river management, and that the ecological resources of the river were in serious decline. The Corps spent fifteen years drafting, collecting comments, revising, and returning to the drawing board for further revisions before finally issuing a new version of the Manual.⁴⁷

When the Corps began its Master Manual revision process, it began to consult with the U.S. Fish and Wildlife Service (FWS) pursuant to section 7 of the ESA. Once a species is listed as endangered or threatened, all federal agencies must consult with the FWS to ensure that their actions will not likely “jeopardize the continued existence of” the species or adversely modify their critical habitat.⁴⁸ Consultations, along with the assessments and BOs that result from consultations, must be based on the best scientific data available.⁴⁹

The initial BO for the Missouri River Master Manual, produced by FWS in 2000, concluded that the status quo—continuing the operations of the dams and reservoirs as usual—would cause jeopardy to the continued existence of all

www.nwd-mr.usace.army.mil/rcc/reports/pdfs/Master_Manual_1979.pdf [hereinafter 1979 MASTER MANUAL]; see also Corps of Eng’rs Office of Counsel, Dep’t of the Army, *The Role of Recreation in the Regulation of the Corps of Engineers Constructed and Operated Main Stem Reservoirs of the Missouri River*, 4 GREAT PLAINS NAT. RESOURCES J. 26, 30 (1999) (stating that the Flood Control Act of 1944 and its legislative history support the primary purposes of flood control, irrigation, navigation, hydroelectric power, and “other uses”).

45. 1979 MASTER MANUAL, *supra* note 44, at IX-2; see also *South Dakota v. Bourland*, 508 U.S. 679, 689-90 (1993) (stating the Flood Control Act affirmatively allows recreational uses as long as the use is not inconsistent with state protections of fish and game or contrary to public interest). Additionally, in *South Dakota v. Ubbelohde*, the court also recognized, “[T]he [Flood Control] Act recognizes secondary uses of the River including irrigation, recreation, fish, and wildlife.” *South Dakota v. Ubbelohde*, 330 F.3d 1014, 1020 (8th Cir. 2003).

46. See *In re Operation of the Mo. River Sys. Litig.*, 363 F. Supp. 2d 1145, 1153-54 (D. Minn. 2004) (explaining that the Master Manual does not constitute binding regulation); 2004 MASTER MANUAL, *supra* note 43, at IV-1.

47. See *In re Mo. River Sys. Litig.*, 363 F. Supp. 2d at 1150 (detailing the complicated process involving consultation and multiple revisions the Corps underwent in releasing the new Manual).

48. 16 U.S.C. § 1536(a)(2) (2006); see also 50 C.F.R. § 402.02 (2010) (defining “jeopardize” as “an action that reasonably would be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species”).

49. 16 U.S.C. §§ 1533(b)(1)(A), 1536(c)(1) (2006).

three species.⁵⁰ Rather than static water levels throughout the year, the species need seasonal fluctuations that mimic the river's natural flow regime. In particular, in the springtime, failing to release higher flows from the reservoirs allows excess vegetation to take root, diminishes the quality of nesting sites, and eliminates spawning cues.⁵¹ Later, in the summer, releasing too much water and maintaining high flows in the river are also detrimental to the species. Although higher flows are desirable for commercial navigation in the lower basin in the summer, high water floods plover and tern nests and inhibits the ability of both juvenile birds and sturgeon to forage for food.⁵²

In its BO, the FWS recommended a reasonable and prudent alternative (RPA) that would enable the Corps to avoid jeopardy to the sturgeon, plover, and tern.⁵³ A central feature of the RPA called for pulses from the reservoirs to replicate at least a semblance of the natural river hydrograph, with high spring flow and low summer flow, which would, in turn, move sediment at appropriate times and places for the species' reproduction, nesting, foraging, and other needs.⁵⁴ In addition, the RPA required adaptive management through continuous monitoring of the effects of RPA implementation, with modifications as necessary to respond to new scientific information and environmental conditions.⁵⁵

Downstream commercial interests—especially barge operators—were not pleased. After the 2000 BO was issued, the Department of the Interior appointed a new FWS team to re-examine the BO and to continue negotiations with the Corps.

The FWS issued an amended BO on the Master Manual in 2003.⁵⁶ The amended BO confirmed the 2000 BO's determination that restoration of a more

50. U.S. FISH & WILDLIFE SERV., BIOLOGICAL OPINION ON THE OPERATION OF THE MISSOURI RIVER MAIN STEM RESERVOIR SYSTEM, OPERATION AND MAINTENANCE OF THE MISSOURI RIVER BANK STABILIZATION AND NAVIGATION PROJECT, AND OPERATION OF THE KANSAS RESERVOIR SYSTEM 2 (2000), available at <http://www.nwd-mr.usace.army.mil/mmanual/finalop/MRBO2000.pdf> [hereinafter 2000 BIOLOGICAL OPINION].

51. *Id.*

52. *Id.* at 242.

53. *Id.* at 279-80; see also § 1536 (b)(3) (providing that, if jeopardy is found, the Secretary shall suggest RPAs to avoid jeopardy).

54. 2000 BIOLOGICAL OPINION, *supra* note 50, at 158, 264-65; see also U.S. FISH & WILDLIFE SERV., 2003 AMENDMENT TO THE 2000 BIOLOGICAL OPINION ON THE OPERATION OF THE MISSOURI RIVER MAIN STEM RESERVOIR SYSTEM, OPERATION AND MAINTENANCE OF THE MISSOURI RIVER BANK STABILIZATION AND NAVIGATION PROJECT, AND OPERATION OF THE KANSAS RIVER RESERVOIR SYSTEM 164 (2003), available at <http://www.nwd-mr.usace.army.mil/mmanual/FinalBO2003.pdf> [hereinafter 2003 AMENDMENT] (summarizing the 2000 BO's findings).

55. 2000 BIOLOGICAL OPINION, *supra* note 50, at 265.

56. 2003 AMENDMENT, *supra* note 54.

natural river hydrograph was necessary to avoid jeopardy to the three species.⁵⁷ Yet, in a dramatic departure from the 2000 BO, the amended BO included an RPA that allows the Corps to maintain relatively high summer flows if it takes steps to mitigate adverse effects by creating a specified amount of habitat.⁵⁸ This result calmed the fears of downstream users, but it set the stage for continued unrest among the upstream interests and environmental groups.

Opponents of the new Master Manual quickly lodged a battery of claims against the Corps⁵⁹ as well as the FWS's amended BO.⁶⁰ This came as no surprise since navigational interests, states, and consumers concerned about water quantity have been on a collision course with ecological interests for decades. The Corps stands at the vortex of the controversy. The conflicting demands of navigation and flood control, on one hand, and ecological protection, on the other, seem irreconcilable. Added to these long-standing tensions is a new source of contention: A quest for clear water versus the need to restore habitat by delivering sediments to the river.

The NRC waded into the fray on two separate occasions. Its first report, issued in 2002 before the Master Manual revision was finalized, is titled *The Missouri River Ecosystem: Exploring the Prospects for Recovery*.⁶¹ This report focused on the adverse effects of dam operations on listed and other native species and reached a "strong consensus" that restoration of a more natural river hydrograph was imperative.⁶² It recommended a moratorium on the Corps' revisions of the Master Manual so that Congress could consider comprehensive legislative action to compel river restoration, adaptive management of the river, and collaboration among agencies and stakeholders.⁶³

In 2008, the NRC was called upon again to address sedimentation and water quality concerns.⁶⁴ It convened the Committee on Missouri River Recovery and Associated Sediment Management Issues to address a specific set of questions including: past and present sediment processes; how the Corps' habitat construction projects and other sediment management alternatives support species recovery; how management alternatives affect water quality; and how man-

57. *Id.* at 12, 17, 18.

58. *Id.* at 148, 175, 276.

59. See Seeronen, *supra* note 17, at 59 (citing cases); Zellmer, *supra* note 17, at 317, 324-33.

60. *In re Operation of the Mo. River Sys. Litig.*, 421 F.3d 618, 632-36 (8th Cir. 2005).

61. 2002 REPORT, *supra* note 21.

62. *Id.* at viii.

63. *Id.* at 136-37, 142.

64. See 2011 REPORT, *supra* note 2, at 2.

agement alternatives affect land building processes and water quality in the Gulf of Mexico.⁶⁵ Relevant findings include:

- For many [Missouri R]iver processes and services, sediment concentrations and transport are as important as the quantity and flow of the water. For example, sediment is the basic building material for river landforms that, among other things, support habitats for native . . . flora and fauna.
- High concentrations of sediment and high turbidity in the preregulation river were important to the evolution and adaptation of native species such as the pallid sturgeon.
- Sediment delivered from the Missouri River to the Mississippi River was historically significant in building and sustaining coastal wetlands in the . . . Louisiana Delta.⁶⁶

The Report demonstrates that sediment management decisions on the Missouri River will have to reconcile the full range of water quality objectives with the biological needs of native species, especially listed species.

III. A CONFLICT OF LAWS?

Restoring and maintaining high quality habitat and ecological integrity are shared goals of the ESA and CWA.⁶⁷ Regulators and river managers alike can and should recognize that the Missouri River, like other big inland rivers, historically carried sediments and nutrients, and that such rivers, unlike clear, cold water mountain streams, are inherently muddy.

A. *The Endangered Species Act*

The ESA strives “to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved.”⁶⁸ It imposes a conservation mission on all federal agencies, which are directed “to conserve endangered species and threatened species and . . . utilize their authorities in furtherance of the purposes of this chapter.”⁶⁹ In addition, ESA section 7 imposes a specific duty on federal agencies to ensure that “any action authorized, funded, or carried out by [that] agency . . . is not likely to jeopardize . . . any

65. *Id.* at 2-3.

66. *Id.* at 4.

67. *See* 16 U.S.C. § 1531(b)-(c) (2006); 33 U.S.C. § 1313(c) (2006).

68. § 1531(b).

69. *Id.* § 1531(c)(1).

[listed] species . . . or result in the destruction or adverse modification of' the species' critical habitat.⁷⁰

The first major case to test the parameters of the ESA involved a Tennessee Valley Authority (TVA) dam on the Little Tennessee River.⁷¹ A snail darter that resided in the river had been listed as an endangered species, and the impoundment of water behind the TVA's Tellico Dam would obliterate its habitat.⁷² The U.S. Supreme Court affirmed an injunction against the completion of the dam, stating that Congress gave listed species "priority over the 'primary missions' of federal agencies" in order to "halt and reverse the trend toward species extinction, whatever the cost."⁷³

On the Missouri River, the Corps engaged in a series of section 7 consultations for the pallid sturgeon, the interior least tern, and the piping plover.⁷⁴ To avoid jeopardy, the BO and amended BO resulting from those consultations require the Corps to modify its operations and to improve habitat for the species.⁷⁵ Specifically, the 2003 amended BO, which is still in effect, relied heavily on habitat construction as an RPA, but it also identified four categories of long-term activities: flow enhancement, including a spring rise and summer drawdown to restore spawning cues and develop sandbars and shallow, slow-water habitat features; unbalanced system regulation (holding one reservoir low while other reservoirs are maintained at average or rising levels); and monitoring and adaptive management to better understand baseline conditions, analyze management actions, and identify necessary modifications to improve the results.⁷⁶ Also, in the short term, the Corps and the FWS agreed to increase pallid sturgeon propagation and augmentation (hatchery) efforts to preserve genetic integrity and prevent extinction.⁷⁷ According to the FWS, these recommendations "include the

70. 16 U.S.C. § 1536(a)(2) (2006).

71. *Tenn. Valley Auth. v. Hill*, 437 U.S. 153 (1978); see generally Zygmunt J.B. Plater, *Tiny Fish Big Battle*, TENN. B.J., Apr. 2008, available at http://www.tba.org/Journal_Current/tbj-2008_04.html (discussing the case's impact on history).

72. *Tenn. Valley Auth.*, 437 U.S. at 161.

73. *Id.* at 184-85.

74. See *supra* Part II (describing consultations between the Corps and the FWS); see generally *Am. Rivers v. U.S. Army Corps of Eng'rs*, 271 F. Supp. 2d 230, 242-44 (D.D.C. 2003) (discussing the Corps' Missouri River Basin ESA consultation history).

75. 2003 AMENDMENT, *supra* note 54, at 17; see also *Questions and Answers Regarding the Biological Opinion on Missouri River Operations*, U.S. FISH & WILDLIFE SERV., <http://www.fws.gov/mountain-prairie/missouririver/mediapacket/q&a11282000.htm> (last visited May 19, 2011) [hereinafter *Questions and Answers*] (confirming the purpose behind the consultations and the findings that current operations put species in jeopardy).

76. 2003 AMENDMENT, *supra* note 54, at 182-88, 203-08; *Questions and Answers*, *supra* note 75.

77. 2003 AMENDMENT, *supra* note 54, at 228; *Questions and Answers*, *supra* note 75.

necessary conservation actions . . . designed to return the Missouri to a more natural river system. It is the combination of all parts of the alternative, working in concert, that will eliminate jeopardy to the species.”⁷⁸

The Corps has some discretion in implementing the various requirements of the BO. The assistant secretary of FWS acknowledged that “[t]he Corps has latitude to determine how best to achieve” biological targets for the three listed species.⁷⁹ Moreover, the 2003 BO observed that “[t]he Corps has the primary responsibility for, and shall monitor the biological resources and responses of threatened and endangered species to changes in the Missouri and Kansas River operations, maintenance, or habitat restoration projects.”⁸⁰

But when it comes to one type of activity—habitat creation and restoration—the Corps’ discretion is constrained by specific, quantifiable requirements: “A portion of the historic habitat *must be* restored, enhanced, and conserved in riverine sections that will benefit the listed birds and fish. Habitat restoration *goals* are 20-30 acres of shallow water (<5 feet deep, <2.5 ft/sec. velocity) per mile.”⁸¹

Accordingly, the Corps has been building shallow water and emergent sandbar projects, such as side channels, chutes, and backwaters, along the river.⁸² Construction is accompanied by the movement of sand or mud, and it inevitably results in sedimentation, prompting concerns about local water quality impacts as well as the delivery of sediments and excess nutrients to the Mississippi Delta and Gulf.⁸³

The State of Missouri wants the construction to stop.

Although the FWS’s formal regulations do not compel action agencies to conform strictly to every line of an RPA, the Corps would be wise to proceed with great caution if it deviates from the RPAs delineated in the amended Missouri River BO.⁸⁴ Following issuance of a BO that specifies RPAs, action agencies must determine whether and how they will proceed with their proposed actions.⁸⁵ The agency in question may take other steps “not likely to jeopardize

78. *Questions and Answers*, *supra* note 75.

79. Letter from Craig Manson, Assistant Sec’y, U.S. Fish & Wildlife Serv., to Cong. Staff, U.S. Senate (Dec. 17, 2003), *available at* <http://www.fws.gov/mountain-prairie/PRESSREL/03-87.htm>.

80. 2003 AMENDMENT, *supra* note 54, at 185, 206, 223.

81. *Questions and Answers*, *supra* note 75 (emphasis added); *see also* 2003 AMENDMENT, *supra* note 54, at 193 (establishing criteria to obtain the shallow water habitat goal and performance standards for the Corps).

82. 2011 Report, *supra* note 2, at 67.

83. *Id.* at 103.

84. 50 C.F.R. § 402.15(a) (2010).

85. *Id.*

the continued existence of any endangered or threatened species.”⁸⁶ Courts have found that section 7 consultation “does not require acquiescence. Should a difference of opinion arise as to a given project, the responsibility for decision after consultation is not vested in the Secretary but in the agency involved.”⁸⁷

An agency’s failure to comply with the RPAs, however, will expose it to a significant risk of ESA penalties and injunction.⁸⁸ Although the Corps and similarly situated agencies are “technically not bound” by the RPAs, courts give a great deal of deference to the FWS’s expertise in crafting appropriate measures to avoid jeopardy. “[A]n agency that attempts to proceed with an action in the face of a critical FWS biological opinion will almost certainly be found to have acted arbitrarily and capriciously and contrary to law.”⁸⁹ When the Corps has failed to implement RPAs on other rivers, it has found itself in hot water and, in fact, has been enjoined from proceeding with flood control projects for failing to prevent jeopardy.⁹⁰

86. *Cabinet Mountains Wilderness v. Peterson*, 685 F.2d 678, 687 (D.C. Cir. 1982) (quoting 16 U.S.C. § 1536(a)(2) (Supp. IV 1980)).

87. *Sierra Club v. Froehlke*, 534 F.2d 1289, 1303 (8th Cir. 1976) (citing *Nat’l Wildlife Fed’n v. Coleman*, 529 F.2d 359 (5th Cir. 1976)); *see also City of Tacoma v. Fed. Energy Regulatory Comm’n*, 460 F.3d 53, 76 (D.C. Cir. 2006) (“[T]he action agency must not blindly adopt the conclusions of the consultant agency Rather, the ultimate responsibility for compliance with the ESA falls on the action agency.” (citing 16 U.S.C. § 1536(a)(1)-(2) (2006)); *Aluminum Co. of Am. v. Bonneville Power Admin.*, 175 F.3d 1156, 1160-61 (9th Cir. 1999) (retaining significant discretion in the agency for determining how to comply with the ESA in light of the BO). *But see Fla. Key Deer v. Paulison*, 522 F.3d 1133, 1145 (11th Cir. 2008) (holding that although an agency need not conduct its own independent analysis of the RPAs, if those RPAs are arbitrary and capricious, the agency’s decision to adopt them is likewise arbitrary and capricious).

88. *See Bennett v. Spear*, 520 U.S. 154, 169-70 (1997) (stating “jeopardy” opinions have a “powerful coercive effect” and an action agency disregards them “at its own peril”); *Tribal Vill. of Akutan v. Hodel*, 869 F.2d 1185, 1193 (9th Cir. 1988) (finding that, by adopting protective steps, Department of Interior fulfilled its ESA responsibilities in conducting oil and gas lease sales, despite having rejected recommendations by the National Marine Fisheries Service).

89. *Lone Rock Timber Co. v. U.S. Dep’t of Interior*, 842 F. Supp. 433, 437 (D. Or. 1994).

90. *See, e.g., Sierra Club v. Marsh*, 816 F.2d 1376, 1385 (9th Cir. 1987) (enjoining a flood control project in San Diego County for failure to modify the project as necessary to avoid jeopardy to two endangered bird species); *Sw. Ctr. for Biological Diversity v. Klasse*, No. CIV S-97-1969 GEB JF, 1999 WL 34689321, at *6 (E.D. Cal. Apr. 1, 1999) (enjoining the Corps from filling a multi-purpose reservoir and requiring re-initiation of consultation where the Corps failed to execute the mitigation measures required by the BO).

B. *The Clean Water Act*

The CWA expresses an overarching goal “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”⁹¹ The Act also includes an interim goal of achieving “water quality which provides for the protection and propagation of fish, shellfish, and wildlife.”⁹²

To achieve these goals, the CWA regulates discharges of pollutants, including soil and nutrients like phosphorous and nitrogen, and it also requires states to develop water quality standards.⁹³ Water quality standards include designated uses of water bodies, numeric or narrative criteria as necessary to protect those uses, and the prevention of degradation of the current condition of water bodies within the state.⁹⁴ States submit their water quality standards to EPA for review and approval.⁹⁵ Standards that fail to reflect the biological or other conservation needs of water-dependent listed species may violate both the CWA and the ESA.

Water bodies that fail to meet approved water quality standards must be identified as impaired and total maximum daily loads and pollutant management plans must be adopted.⁹⁶ Portions of both the Missouri and Mississippi Rivers have been listed under the CWA as impaired. The State of Missouri, for example, added the two rivers to its 1998 list of impaired waters for “habitat loss” due to “channelization.”⁹⁷

Reducing sediment runoff has been the focus of storm water management, erosion control, and nutrient reduction efforts nationwide.⁹⁸ According to the NRC Report:

91. 33 U.S.C. § 1251(a) (2006).

92. *Id.* § 1251(a)(2).

93. *See id.* § 1251(b); 33 U.S.C. § 1362(6) (2006) (the term “pollutant” includes dredged spoil, rock, sand, and cellar dirt).

94. *See* 40 C.F.R. § 131.6 (2010).

95. *See* 33 U.S.C. § 1313(c)(2)(A) (2006).

96. *Id.* § 1313(d)(1).

97. *Mo. Soybean Ass’n v. Mo. Clean Water Comm’n*, 102 S.W.3d 10, 20, 29 (Mo. 2003) (rejecting challenges to the State’s listing of impaired waters); *see Mo. Soybean Ass’n v. Env’tl. Prot. Agency*, 289 F.3d 509, 511, 513 (8th Cir. 2002) (rejecting challenges to the EPA’s approval of the State’s list as not “ripe” because it was based on speculative injuries to association members including decreases in property values, required changes in land management practices, limitations on crop growth and rotation, and limitations on use of fertilizers and pesticides).

98. *See Natural Res. Def. Council v. Env’tl. Prot. Agency*, 526 F.3d 591, 607 (9th Cir. 2008) (discussing the EPA’s position that oil and gas facility discharges of storm water runoff resulting in water quality violations were not exempt from permitting requirements even if the runoff was contaminated only with sediment); *see also Pronsolino v. Natri*, 291 F.3d 1123, 1132-33 (9th Cir. 2002) (authorizing EPA to determine total maximum daily loads for rivers polluted only by logging runoff and other nonpoint sources of sediment and other pollution).

On so-called “clear-water” streams and rivers, excess inputs of sediment—for example from basin land uses such as agriculture or localized activities such as construction—can raise sediment concentrations in the water far higher than natural background or historical levels. In these cases, sediment rightly can be viewed as a pollutant, with potentially severe impacts on species native to that tributary, to aesthetics, and to river form and water quality.⁹⁹

Sedimentation is “the sixth most common cause of impairment in [U.S.] water bodies (after pathogens, metals other than mercury, mercury, nutrients, and organic enrichment).”¹⁰⁰ In the Missouri River basin, there are hundreds of small creeks and streams that have been impaired by sediments and associated nutrients, especially in Montana, South Dakota, and Kansas.¹⁰¹

Sources of impairment in the basin include “croplands, livestock-feeding operations, grazing in riparian lands, wastewater treatment plants, and stream bank modification.”¹⁰² Overall, agriculture is the largest source of nitrogen and phosphorus in water delivered to the Gulf of Mexico.¹⁰³

The EPA encourages, and in some cases requires, states to develop numeric criteria as a component of their water quality standards.¹⁰⁴ As of 2008, Montana was the only state in the Missouri River basin that had adopted numeric nutrient criteria.¹⁰⁵ The other states, including Missouri, had narrative nutrient criteria.¹⁰⁶ Kansas law, for example, states that “[s]uspended solids added to surface waters by artificial sources shall not interfere with the behavior, reproduction, physical habitat, or other factors related to the survival and propagation of aquatic or semiaquatic life or terrestrial wildlife.”¹⁰⁷

Treating sediment as a pollutant that adversely affects water quality throughout the Missouri River basin, and imposing one-size-fits-all criteria, would be a mistake. Pre-anthropogenic concentrations of sediment in reaches of the mainstem and some tributary streams were far greater than those found in the

99. 2011 REPORT, *supra* note 2, at 25.

100. *Id.* at 118.

101. *Id.*

102. *Id.*

103. *See id.* at 25.

104. 40 C.F.R. § 131.11(b) (2010).

105. *See generally* MONT. DEP’T OF ENVTL. QUALITY, FINAL REPORT TO THE ENVIRONMENTAL QUALITY COUNCIL ON PROGRESS TOWARD NUMERIC NUTRIENT STANDARDS FOR MONTANA’S SURFACE WATERS (2010) (discussing findings that support the adoption of numeric nutrient criteria).

106. *See id.* at 2 (“Narrative water quality standards that address nutrient effects . . . were adopted for all state waters decades ago, but the fact that narrative standards are general statements, rather than specific numbers, has led to their limited application.”).

107. KAN. ADMIN. REGS. § 28-16-28e(c)(2)(B) (2011).

river today.¹⁰⁸ The river is downright malnourished when it comes to sediments. The NRC Committee found, however, that phosphorus levels may be above the background levels for the historic river, but that at present other types of water pollutants are more troubling.¹⁰⁹

[A]lthough phosphorus is a key sediment-associated constituent of concern, other chemicals of concern for water quality management are present in Missouri River sediments in some locations. These include trace metals such as lead and mercury, and trace organics such as PCBs and organochlorine pesticides. In general, however, knowledge of total phosphorus content or knowledge about other chemical constituents at restoration projects is limited.¹¹⁰

The physical lack of sediment in the river and the informational void regarding phosphorous led the NRC Report to conclude that “release of large grain-size sediments to the mainstem—often being material that has been trapped by the river control structures of the Bank Stabilization and Navigation Project over the years—may be essential to attaining designated uses that support native species.”¹¹¹ Accordingly, water quality standards should reflect these dynamics.

The development of narrative or numeric criteria considers historical nutrient and sediment factors in setting limits on sediment and phosphorus discharges to the mainstem river and as a basis for regulating such discharges. However these criteria are set, regulatory consistency will require that all sources seek to avoid making discharges, or if such discharges cannot be avoided, offset increased loads with reductions in other places or from other actions. Also, *if there is a need for such offsets when sediment discharges to the river are made for native species restoration, they can be established only if there is adequate monitoring of the sediment characteristics and the phosphorus in the sediments released. . . . The release of sediments from restoration projects, both the total quantity and chemistry, needs to be better understood through monitoring of construction activities in support of restoration along the Missouri River.*¹¹²

Thus, the effects of upland activities on the river itself and on the Gulf of Mexico should be studied further and considered in setting sediment and nutrient criteria. A recent EPA Inspector General report recommended that the numeric criteria development process be accelerated in states within the Mississippi-Missouri River basins that contribute to hypoxia in the Gulf.¹¹³ Meanwhile, EPA

108. 2011 REPORT, *supra* note 2, at 25-26.

109. *Id.* at 120.

110. *Id.* at 121 (citation omitted).

111. *Id.* at 118-19.

112. *Id.* at 121 (emphasis added).

113. OFFICE OF INSPECTOR GEN., ENVTL. PROT. AGENCY, REPORT NO. 09-P-0223, EPA NEEDS TO ACCELERATE ADOPTION OF NUMERIC NUTRIENT WATER QUALITY STANDARDS 10 (2009).

Region 7 is developing guidance that will “assist the basin states in adopting numeric nutrient criteria for the shared mainstem Missouri River.”¹¹⁴

Regardless of the outcome of these efforts, preventing nutrient contamination in the Missouri River cannot by itself solve the hypoxia problem in the Gulf of Mexico. The NRC Report found that the upper bound estimates of the increase in phosphorus from the Corps restoration projects are not likely to affect the size of the hypoxic area in the Gulf.¹¹⁵ Specifically, “[a] comparison of potential phosphorus loads from Corps SWH [Shallow Water Habitat] projects, with load increments required to produce measureable changes in the areal extent of Gulf hypoxia, shows that these projects will not significantly change the extent of the hypoxic area in the Gulf of Mexico.”¹¹⁶ No doubt, additional preventative measures and restoration initiatives will be necessary to protect and restore the Gulf.¹¹⁷

Once water quality standards are set, section 401 of the CWA authorizes states to issue Water Quality Certifications for certain federal projects.¹¹⁸ The 401 certification verifies that discharges from the project will not violate state water quality standards.¹¹⁹ This effectively gives state agencies a limited veto over proposed federal projects. The U.S. Supreme Court has had occasion to consider challenges to states’ use of 401 certification requirements to impose minimum stream flow requirements on hydroelectric dams licensed by the Federal Emergency Regulatory Commission (FERC). In *S.D. Warren Co. v. Maine Board of Environmental Protection*, the hydroelectric company sought the renewal of its federal licenses for five dams it operated to generate power for its paper mill.¹²⁰ Each dam impounded water, which was then run through turbines and returned to the riverbed, bypassing a section of the river.¹²¹ Under protest, the company applied for water quality certifications from the Maine Board of Environmental Protection pursuant to section 401.¹²² The Board determined that the dams had caused long stretches of the natural river bed to dry out, thereby blocking the passage of sea-run eels and fish to their spawning and nursery wa-

114. 2011 REPORT, *supra* note 2, at 116.

115. *Id.* at 122.

116. *Id.*

117. For a small sampling of legal scholarship related to Gulf restoration, refer to Oliver A. Houck, *Retaking the Exam: How Environmental Law Failed New Orleans and the Gulf Coast South and How It Might Yet Succeed*, 81 TUL. L. REV. 1059 (2007); Christine A. Klein & Sandra B. Zellmer, *Mississippi River Stories: Lessons from a Century of Unnatural Disasters*, 60 SMU L. REV. 1471 (2007).

118. 33 U.S.C. § 1341 (2006).

119. *See id.*

120. *S.D. Warren Co. v. Me. Bd. of Env'tl. Prot.*, 547 U.S. 370, 373 (2006).

121. *Id.*

122. *Id.* at 374-75.

ters; the dams had also eliminated opportunities for fishing and other recreational activities in these areas.¹²³ Maine's section 401 certification required the company to maintain minimum stream flows and allow passage for fish and eels.¹²⁴ The dams were licensed by FERC subject to compliance with those requirements.¹²⁵ The Supreme Court agreed that, because the dams raised a potential for a discharge, section 401 was triggered and compliance with state certification was required.¹²⁶

The handwriting was on the wall when the *S.D. Warren* case came before the Supreme Court. Years earlier, in 1994, the Court issued its only other case on section 401, *PUD No. 1 v. Washington Department of Ecology*.¹²⁷ At issue in *PUD No. 1* was Washington's authority to impose minimum stream flow rates on a hydroelectric dam.¹²⁸ There was no dispute that the dam operators were required to obtain a certification pursuant to section 401; indeed, they had conceded that the project would result in at least "two possible discharges—the release of dredged and fill material during the construction . . . and the discharge of water at the end of the tailrace after the water ha[d] been used to generate electricity."¹²⁹ The Court firmly rejected the operators' argument that the stream flow conditions exceeded Washington's authority to prevent degradation of water quality.¹³⁰

In 2007 the Missouri Clean Water Commission refused to issue a 401 certification for the Corps' habitat construction projects along the Missouri River and ordered the Corps to stop discharging sediments into the river, stating that any such discharges would violate the state's water quality standards.¹³¹ The Corps halted its activities on the river in the State of Missouri.¹³² The NRC Report described the predicament facing the Corps:

The Corps interprets the [BO] as requiring it to increase turbidity in the river and hence it is encouraged if not mandated, pursuant to the [ESA], to discharge sediments for habitat mitigation projects into the river. Generally speaking, the com-

123. *Id.* at 385-86 (quoting *In re S.D. Warren Co. v. Me. Bd. of Env'tl. Prot.*, No. Civ. A. AP-03-70, 2004 WL 1433675 (Me. 2004)).

124. *Id.* at 375.

125. *Id.*

126. *Id.* at 385, 387.

127. *PUD No. 1 v. Wash. Dep't of Ecology*, 511 U.S. 700 (1994).

128. *Id.* at 703.

129. *Id.* at 711.

130. *Id.*

131. *See* 2011 REPORT, *supra* note 2, at 60.

132. *See id.*

mission accepts that the [BO] calls for habitat construction, but that it does not require discharge of sediments into the mainstem Missouri River.¹³³

In March 2010, the State of Missouri initiated a process to draft nitrogen and phosphorus criteria for rivers and streams.¹³⁴ Rulemaking was to be finished by the end of 2012,¹³⁵ but it was suspended pending negotiations with the EPA, which expressed concerns about a related effort to issue nutrient criteria for lakes.¹³⁶

Better coordination between states like Missouri and the EPA in the development of nutrient criteria was a key recommendation of the NRC Report.¹³⁷ The Report specifically noted that “[t]he actions of the Missouri Clean Water Commission [with regard to the Corps’ restoration efforts on the Missouri River] highlight the need for closer integration of the nutrient criteria development process and water quality management decision making.”¹³⁸ However, the Report expressed concern that limited time and funding might impede the process:

The federal agencies, working cooperatively with all the states, can reconcile the setting of sediment and nutrient criteria with the [ESA] and congressionally mandated programs to avoid jeopardy to three endangered species and help restore Missouri River ecology. However, recent EPA supported water quality criteria development efforts for the mainstem Missouri were conducted with limited time and funding and not able to fully consider the needs of native species.¹³⁹

IV. RESOLVING THE PERCEIVED CONFLICT

A. *The CWA and the ESA in Harmony*

The legislative history and objectives of the CWA show that historic watershed and habitat conditions can and should be a template for setting water quality uses and criteria. The Senate Report that accompanied the legislation

133. *Id.* at 65.

134. Missouri adopted numeric nutrient criteria for lakes and reservoirs outside of the Missouri and Mississippi River alluvial plains in 2009. MO. CODE REGS. ANN. tit. 10, § 20-7.031(4)(N) (2010). As of November 2010, the EPA had not yet approved the new criteria. STREAM NUTRIENT CRITERIA STAKEHOLDER GRP., MO. DEP’T OF NATURAL RES., MEETING SUMMARY 1 (2010), available at <http://www.dnr.mo.gov/env/wpp/wqstandards/meeting-20101116.pdf> [hereinafter MEETING SUMMARY].

135. MEETING SUMMARY, *supra* note 134; *Nutrient Standards*, MO. COAL. FOR THE ENV’T, <http://www.moenviro.org/water-program/agriculture/nutrient-management/> (last visited May 19, 2011).

136. MEETING SUMMARY, *supra* note 134.

137. 2011 REPORT, *supra* note 2, at 12.

138. *Id.* at 120.

139. *Id.* at 120-21.

refers to “[t]he ‘natural . . . integrity’ of the [Nation’s] waters,” and highlights the importance “of historical records on species composition, . . . ecological studies[,] . . . [and] estimations of [what] the balanced natural ecosystem” should look like.¹⁴⁰ Similarly, the 1972 House Report describes “‘integrity’” as “a condition in which the natural structure and function of ecosystems is maintained.”¹⁴¹

Given these statutory purposes, compliance with the pollution control and water quality provisions of the CWA should complement, not displace, an agency’s duties under the ESA, which was adopted just one year after the CWA.¹⁴² Likewise, compliance with the ESA does not displace duties imposed by the CWA.¹⁴³

As the U.S. Supreme Court has stated on numerous occasions, “‘repeals by implication are not favored’ and will not be presumed unless the ‘intention of the legislature to repeal [is] clear and manifest.’”¹⁴⁴ Repeal cannot be inferred unless there is an “‘irreconcilable conflict’”¹⁴⁵ between two statutes, a subsequent statute “‘expressly contradict[s] the original act,’”¹⁴⁶ or the repeal of one statute “‘is absolutely necessary . . . in order that [the] words [of the later statute] shall have any meaning at all.’”¹⁴⁷

Of course, if statutory provisions do in fact conflict such that an agency cannot comply with both, something has to give way. In *National Ass’n of Home Builders (NAHB) v. Defenders of Wildlife*, the Supreme Court considered a FWS regulation specifying that section 7(a)(2)’s consultation requirements apply “‘to all actions in which there is *discretionary* Federal involvement or control,’” but not to nondiscretionary actions that left no room for the action agency to take additional or alternate measures to conserve the species.¹⁴⁸ At issue in *NAHB* was the EPA’s delegation of CWA permitting authority for the National Pollutant

140. S. REP. NO. 92-414, at 48 (1971), *reprinted in* 1972 U.S.C.C.A.N. 3668, 3716.

141. H.R. REP. NO. 92-911, at 76 (1972), *reprinted in* 1 ENVTL. PROT. AGENCY, LEGAL COMPILATION WATER 280 (Supp. I 1973).

142. *See Nat’l Ass’n of Home Builders v. Defenders of Wildlife*, 551 U.S. 644, 649 (2007).

143. *See id.*

144. *Id.* at 662 (alteration in original) (quoting *Watt v. Alaska*, 451 U.S. 259, 267 (1981)).

145. *Branch v. Smith*, 538 U.S. 254, 273 (2003) (“An implied repeal will only be found where provisions in two statutes are in ‘irreconcilable conflict,’ or where the latter Act covers the whole subject of the earlier one and ‘is clearly intended as a substitute.’”).

146. *Traynor v. Turnage*, 485 U.S. 535, 548 (1988) (alteration in original) (quoting *Radzanower v. Touche Ross & Co.*, 426 U.S. 148, 153 (1976)).

147. *Id.*

148. *Nat’l Ass’n of Home Builders*, 551 U.S. at 665 (quoting 50 C.F.R. § 402.03 (2007) (emphasis added)).

Discharge Elimination System to the State of Arizona.¹⁴⁹ The CWA compelled the EPA to authorize the delegation once nine specified conditions were met.¹⁵⁰ The Court held that requiring the EPA to consult with the FWS before deciding on Arizona's delegation would have unlawfully added a tenth requirement to the statutory list of conditions.¹⁵¹ According to the Court, the EPA was unable to "simultaneously obey" both the explicit, nondiscretionary provisions of the CWA's delegation provision and the ESA's consultation requirements.¹⁵²

Cases following *NAHB* have limited its effect to those rare occasions where compliance with both section 7 consultation requirements and the statutory provision in question would be impossible. *Center for Biological Diversity v. U.S. Department of Housing & Urban Development (HUD)* represents one of those rare occasions.¹⁵³ There, the court held that guaranteeing loans for private developments that pumped groundwater from an aquifer that provided habitat for listed species did not require consultation because the federal lending agencies had virtually no discretion over the programs dispersing the loans.¹⁵⁴ The agencies did not directly fund the projects at issue; rather, they merely guaranteed loans dispersed to applicants by private lenders.¹⁵⁵ Moreover, the funding decisions turned on the financial status and needs of the applicant, and veterans automatically received loan guarantees.¹⁵⁶ After the loan guarantees had been approved, there was no ongoing control over the borrower or the property, and therefore no ability to implement measures that could inure to the benefit of the species.¹⁵⁷ Absent ongoing control and discretion to alter or influence the development, consultation would be futile, so section 7's requirements did not apply.¹⁵⁸

NAHB and *HUD* represent narrow exceptions to the otherwise broad sweep of the ESA. More generally applicable cases construing a variety of statutory provisions have held that action agencies have sufficient discretion to com-

149. *Id.* at 649-50.

150. *Id.* at 650-51 (quoting 33 U.S.C. § 1342(b) (2006)). *See generally id.* at 651 n.2 (describing the nine conditions).

151. *Id.* at 663-64.

152. *Id.* at 666.

153. *See* *Ctr. for Biological Diversity v. U.S. Dep't of Hous. & Urban Dev.*, 541 F. Supp. 2d 1091, 1097-1100 (D. Ariz. 2008), *aff'd*, 359 F. App'x 781 (9th Cir. 2009).

154. *See id.* at 1093-94, 1097-98.

155. *Id.* at 1095.

156. *Id.* at 1099 (citing 38 U.S.C. § 3702 (2006)); *cf.* *Natural Res. Def. Council v. Kempthorne*, 621 F. Supp. 2d 954, 1000-01 (E.D. Cal. 2009) (not requiring the Bureau of Reclamation to consult regarding the effects of its implementation of water service contracts because the original contracts predated ESA enactment, and the contracts gave the Bureau no discretion to modify water diversions).

157. *Ctr. for Biological Diversity*, 541 F. Supp. 2d at 1099.

158. *See id.* at 1097-98.

ply with the ESA. For instance, the Eleventh Circuit found that the Federal Emergency Management Administration (FEMA) had enough discretion in administering the National Flood Insurance Program to require it to consult on the effects of new insurance commitments and associated development on listed species.¹⁵⁹ FEMA was required to make flood insurance available in areas with adequate land use and control measures, as judged by comprehensive eligibility criteria.¹⁶⁰ The statute required FEMA to consider studies and any other relevant information to “develop comprehensive criteria designed to encourage . . . the adoption of adequate State and local measures which, to the maximum extent feasible, will,’ in addition to reducing the development of flood-prone land, ‘*otherwise improve the long-range land management and use of flood-prone areas.*”¹⁶¹ Although FEMA was required to issue insurance to localities that satisfy the criteria, FEMA itself was charged with, and had broad discretion for, developing the criteria.¹⁶² In contrast to the provisions at issue in *NAHB* and *HUD*, FEMA had enough latitude to consider and conserve listed species; therefore, FEMA could comply with both statutes.¹⁶³

Likewise, the Ninth Circuit held that the operations of Columbia River Power System dams and related facilities were subject to ESA section 7 consultations to avoid jeopardy to listed salmon and steelhead.¹⁶⁴ The court rejected arguments by the Corps and the Bureau of Reclamation that “competing mandates for flood control, irrigation, and power production create[d] any immutable obligations that [fell] outside of agency discretion.”¹⁶⁵ The legislation governing dam operations imposed broad mandates in the form of directions to achieve particular goals rather than specific criteria or prescriptions.¹⁶⁶ The court found that “the goals themselves may be mandatory, [but] the agencies retain considerable discretion in choosing what specific actions to take in order to implement them.”¹⁶⁷ Thus, the agencies were “perfectly capable of simultaneously obeying [s]ection 7 and those mandates.”¹⁶⁸ The court cautioned that “ESA compliance is not optional. ‘[A]n agency cannot escape its obligation to comply with the ESA merely

159. Fla. Key Deer v. Paulison, 522 F.3d 1133, 1141-42 (11th Cir. 2008).

160. *Id.* at 1141 (citing 42 U.S.C. § 4012(c) (2006)).

161. *Id.* at 1141-42 (quoting § 4102(c) (emphasis added)).

162. *Id.*

163. *Id.* at 1142.

164. Nat'l Wildlife Fed'n v. Nat'l Marine Fisheries Serv., 524 F.3d 917, 922-23 (9th Cir. 2008).

165. *Id.* at 928.

166. *Id.*

167. *Id.* at 929.

168. *Id.* at 928.

because it is bound to comply with another statute that has consistent, complementary objectives.”¹⁶⁹

In sum, post-*NAHB* cases make it clear that discretionary steps taken by an agency are not immunized from ESA compliance just because those steps are taken in pursuit of a nondiscretionary statutory goal. The CWA’s goal of ensuring the integrity of our nation’s water bodies can be satisfied through the implementation of well-tailored water quality standards that reflect the historic conditions of the river and the needs of listed species that rely on those conditions.

Missouri River cases predating the *NAHB* decision do not suggest a contradictory result. In an Eighth Circuit case issued in 2005, the court rejected North Dakota’s attempt to stop the Corps from releasing water from Lake Sakakawea (a reservoir on the upper Missouri) to ensure compliance with the state’s water quality standards for fisheries.¹⁷⁰ There, the court found a clear conflict between North Dakota’s position and the Corps’ ability to maintain navigation:

On its face, § 1371(a) [of the Flood Control Act] exempts the Corps . . . from complying with the CWA when its authority to maintain navigation would be affected. It is also clear from the face of North Dakota’s complaint that North Dakota is attempting to use its state water-quality standards to affect the Corps’ authority to release water from Lake Sakakawea to support navigation.

....

. . . If we allowed North Dakota to enforce its water-quality standards on this basis, there is no discernible limit to the new structures and new operational plans that other states with main-stem [sic] reservoirs could demand to force the Corps to comply with their own water-quality standards. If each state is allowed to use its reservoir water-quality standards as a tool to control how the Corps must release water from the main stem reservoirs, the “authority of the Secretary of the Army . . . to maintain navigation” will obviously be affected, in violation of § 1371(a).¹⁷¹

169. *Id.* at 929 (alteration in original) (quoting *Wash. Toxics Coal. v. Envtl. Prot. Agency*, 413 F.3d 1024, 1032 (9th Cir. 2005)). *See also* *Salmon Spawning and Recovery Alliance v. U.S. Customs and Border Protection*, 550 F.3d 1121, 1128-29 (Fed. Cir. 2008) (citing *Heckler v. Chaney*, 470 U.S. 821, 830-31 (1985) (finding that the ESA applied to salmon imports but that the Customs Service’s failure to enforce an import ban was a discretionary exercise of enforcement powers under the ESA, and thus was not subject to judicial review under the Administrative Procedure Act)).

170. *In re Operation of the Mo. River Sys. Litig.*, 418 F.3d 915, 917, 919-20 (8th Cir. 2005).

171. *Id.* at 918-19 (quoting 33 U.S.C. § 1371(a)(2) (2000) (“This chapter shall not be construed as . . . affecting or impairing the authority of the Secretary of the Army . . . to maintain navigation . . .”)).

In a related and more directly applicable opinion, however, the Eighth Circuit concluded that the Corps had been given sufficient discretion in the Flood Control Act to consult under ESA section 7.¹⁷² The court noted that the Flood Control Act prioritizes flood control and navigation over other objectives in the operation of the Missouri River system, but found that operating strategies that would eliminate the full navigation season on the Missouri River during only the worst drought years (four years out of one hundred) in order to protect the listed species did *not* conflict with the Flood Control Act.¹⁷³ Thus, the Corps could not establish that it lacked the discretion to comply with the requirements imposed by the BO.¹⁷⁴

B. *Getting to Yes*

Legal arguments aside, perhaps the greatest hope of untying the Gordian knot on the Missouri River lies in ongoing collaborative efforts among federal and state agencies and stakeholders.

In its 2004 Master Manual, the Corps committed itself to river restoration actions to be identified, assessed, and implemented through the Missouri River Recovery and Implementation Committee (MRRIC).¹⁷⁵ This is a comprehensive effort led by the Corps in partnership with other federal agencies, tribes, states, and non-governmental organizations to develop and implement actions to recover the Missouri River.¹⁷⁶ The goal is nothing less than a “sustainable ecosystem supporting thriving populations of native species while providing for current social and economic values.”¹⁷⁷ One component is a collaborative long-term study known as the *Missouri River Ecosystem Restoration Plan and Environmental Impact Statement*,¹⁷⁸ which is intended to guide future recovery efforts throughout the basin.¹⁷⁹ Congress is funding these efforts through the Water Resources Development Act of 2007.¹⁸⁰

172. See *In re Operation of the Mo. River Sys. Litig.*, 421 F.3d 618, 629 n.7 (8th Cir. 2005) (observing that the Flood Control Act would forbid the complete abandonment of navigation or flood control).

173. *Id.* at 629.

174. *Id.* at 631.

175. See 2004 MASTER MANUAL, *supra* note 43, at app. I-11.

176. *Id.*

177. *Recovering the River*, MO. RIVER RECOVERY PROGRAM, <http://www.moriverrecovery.org> (last visited May 19, 2011).

178. *The Missouri River Ecosystem Restoration Plan*, MO. RIVER RECOVERY PROGRAM, <http://www.moriverrecovery.org/mrrp/f?p=136:11:1217657026422511> (last visited May 19, 2011).

179. See Water Resources Development Act of 2007, Pub. L. No. 110-114, § 5018, 121 Stat. 1041, 1199.

180. *Id.*

The NRC Report noted that, despite these new initiatives, the Corps remains the “water master,”¹⁸¹ but it urged the Corps to seize the opportunities presented by these ongoing cooperative efforts.

The [MRRIC] has the potential to play a central role in building consensus among a broad group of federal agencies and stakeholders in matters related to water and sediment management. To help realize that potential, the Assistant Secretary of the Army . . . should periodically review the MRRIC mission statement, operational rules, and accomplishments; implement modifications to the mission, rules, and operations as deemed appropriate, and report its results to the Congress.¹⁸²

Going forward, the NRC Report cautioned that the role of MRRIC vis-à-vis the Corps “will need to be defined within the setting of occasional cross-purposes of river users, limits of the river’s resources to meet all user demands, and the increasing powers and responsibilities of multiple federal, state, and tribal agencies granted by environmental laws, especially the [ESA].”¹⁸³

MRRIC involvement can complement the implementation of the BO, which directs the Corps to employ an adaptive management and monitoring program to ensure that habitat construction projects and other measures are, in fact, avoiding jeopardy to the listed species.¹⁸⁴ Through adaptive management, the Corps is to identify and track the consequences of management actions in response to new information and changing environmental conditions.¹⁸⁵ A key component of the adaptive management process is the utilization of an “Inter-agency Coordination Team (ACT) to coordinate and guide development and implementation of a robust monitoring program [designed] to better understand [historic, pre-dam] baseline conditions, analyze [the effects of management] actions, and implement modifications as necessary to improve results.”¹⁸⁶

The NRC Report also supports adaptive management.¹⁸⁷ It found, however, that “[t]o date, the . . . projects have been implemented and monitored with only limited strategic guidance and have not been part of a systematic, long-term adaptive management program.”¹⁸⁸

There is need for improvement. Among other things, effective adaptive management will require the “sustained commitment of resources for monitoring and science programs, stakeholder participation and discussions, expert input and

181. 2011 REPORT, *supra* note 2, at 6.

182. *Id.* at 7.

183. *Id.* at 66.

184. *See* 2003 AMENDMENT, *supra* note 54, at 182.

185. 2011 REPORT, *supra* note 2, at 68; 2003 AMENDMENT, *supra* note 54, at 182.

186. 2011 REPORT, *supra* note 2, at 58.

187. *See id.*

188. *Id.* at 7.

advice, and patience in working with large ecological systems and species that do not respond quickly or predictably to management actions.”¹⁸⁹

With respect to the role of science more generally, science and scientists must play a role in decision making; however, science alone cannot identify and prioritize social values and goals. These aspects of decision making turn on policy. Decision makers and stakeholders alike need to recognize “the different domains of science and policy.”¹⁹⁰ The NRC Report cautions:

[Scientists have] important roles in informing decisions regarding ecosystem restoration and species protection. . . . Scientists can help identify uncertainties and alternative outcomes that attend these actions, and can assist in estimating likely outcomes of various choices in the public decision process.

Scientific issues and questions can, however, blend into other related questions such as, “What happens if management of non-native, recreational fisheries is perceived by some as conflicting with recovery of endangered pallid sturgeon?”. . . . Decision makers posed with these types of questions must consider not only possible effects on fishes and the broader biotic community, but also possible social and economic effects of a given action.¹⁹¹

In other words, the role of science is to inform policy options, not to insulate decision makers from accountability by abdicating decision making responsibilities to scientists. Decision makers will have to grapple with trade-offs among Missouri River users regardless of the amount and quality of scientific data available to them. Trade-offs are inevitable. For example, when the Corps adds sediment to the river to improve habitat for native species, agricultural producers may feel that they bear unfair and disproportionate obligations to limit soil erosion. Meanwhile, those who use the mainstem channel for commercial navigation may view the Corps’ activities as threatening the channel’s depth and width and undermining their purposes.

Policy efforts to resolve these types of conflicts are being vetted by MRRIC and are also being addressed, at least in part, through the Omnibus Appropriations Act of 2009. This addition to the statutory framework governing Missouri River operations mandates a Missouri River Authorized Purposes Study to review the original project purposes specified in the Flood Control Act: flood control, navigation, irrigation, hydropower, water supply, recreation, and fish and wildlife.¹⁹² This study, to be completed in five years, will recommend whether

189. *Id.* at 85.

190. *Id.* at 128.

191. *Id.* at 127. See generally Sandra Zellmer & Lance Gunderson, *Why Resilience May Not Always Be a Good Thing: Lessons in Ecosystem Restoration from Glen Canyon and the Everglades*, 87 NEB. L. REV. 893 (2009) (analyzing the respective roles of policy and science in adaptive management).

192. Omnibus Appropriations Act, Pub. L. No. 111-8, § 108, 123 Stat. 524, 607 (2009).

changes in the authorized purposes are warranted.¹⁹³ The Omaha and Kansas City Districts of the Corps of Engineers are conducting the study with input from other federal agencies, Missouri River basin tribes, state agencies, MRRIC, and other stakeholders.¹⁹⁴ This process is an excellent opportunity to conduct a thorough evaluation of management options that reflect current values, priorities, and scientific understanding, and to resolve conflicts posed by an anachronistic law passed over sixty-five years ago.

V. CONCLUSION

Not all rivers, and not all sediments, are alike. Both differ in their chemical, biological, and physical characteristics. The sources of sediments differ, and the sediment and nutrient history of each river segment and each tributary is different. Therefore, it would be expected that not only would water quality criteria differ across segments and tributaries, but also that expectations and rules governing sediment discharges would differ as well. In the Missouri River, where the historic reference conditions include large sediment loads and sediment-loving species, discharges consistent with those conditions should be allowed under the CWA and may be compelled under the ESA.

193. *See id.*

194. *See id.*; *Scoping Process Timeline*, MO. RIVER AUTHORIZED PURPOSES STUDY, <http://www.mraps.org/> (last visited May 19, 2011).

