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Judicial Approaches to Dealing With Constitutional Limitations Surrounding Ecosystem-Based Management: Can Rapanos Offer Guidance by

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Judicial Approaches to Dealing With Constitutional Limitations Surrounding Ecosystem-Based Management: ***Can Rapanos Offer Guidance by Suggesting "Ecosystem Factors" in the Definition of What Constitutes "Waters of the United States?"***

I. Introduction

The purpose of this paper is to analyze recent judicial precedent interpreting the extent of federal jurisdiction over ecological resources within the context of coastal resource management. A focus will be placed on the recent US Supreme Court opinion in *Rapanos v. United States*.[1] The intent is to determine, to some extent, the willingness of the judicial branch to read "ecosystem principles" as a basis for accepting federal jurisdiction under the commerce power of the United States Constitution.[2] What may be defined as "ecosystem services" will likely include resources that extend into jurisdictions traditionally reserved to the states. One such area is coastal resources, including terrestrial waters that ultimately influence the biological, chemical, and physical health of those resources. Ultimately, the extent of federal jurisdiction will be resolved in the judicial arena. This paper attempts to look at how the judiciary, within the context of the *Rapanos* opinion, most recently tried to resolve a longstanding jurisdictional debate. The decision, as well as at least one subsequent federal appellate opinion, seems to suggest ecosystem principles may be a judicially allowable manner of federal regulation, even where such regulation extends to traditional state resources.

Regardless of the arguments for or against, ecosystem-based management seems destined to become a component of future environmental management. Looking at

[1] 547 U.S. ___, 126 S.Ct. 2208 (2006).

[2] U.S. Const. art. I, §8, cl. 3.

coastal resources, two recent reports, generated from the private and public sector respectively, have agreed upon the need for ecosystem-based management, along with a more integrated federal approach.[3] Moreover, scientists have increasingly supported the wisdom of such management schemes.[4] It seems only a matter of time until policy catches up with the scientific call to ecosystem arms.[5] Indeed, many "vehicles" for the implementation of ecosystem-based principles are beginning to develop, at least on a multi-state and regional basis.[6] This is the case even where a definition of *"ecosystem-based management"* remains operationally vague for policymakers.[7] Regardless of "definitional" challenges, most advocates of ecosystem management argue for increased

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[3] *See,* Pew Oceans Commission. *America's Living Oceans: Charting a Course for Sea Change* (2003). Available at: http://pewtrusts.org/pdf/env_pew_oceans_final_report.pdf (last visited: April 7, 2007); U.S. Commission on Ocean Policy. *An Ocean Blueprint for the 21st Century* (2004). Available at: http://www.oceancommission.gov/documents/full_color_rpt/000_ocean_full_report.pdf (last visited: April 7, 2007).

[4] *See*, Editor, *Ocean Policy: Troubled Waters*, Nature, August 15, 2002, at 718-720 (Discussing the fragmented nature of federal policy regarding ocean management, as well as the need for a uniformed, ecosystem-based approach based on scientific principles).

[5] It should be noted certain programs related to ocean sources have already embraced principles of ecosystem-based management. See generally, 16 U.S.C.A. §§ 1431-1445a (Marine Protection, Research and Sanctuaries Act); 16 U.S.C.A §§ 1801-1882 (Magnuson-Stevens Fishery Conservation and Management Act). Unlike the concepts developed in these marine-focused laws, the purpose of this paper is to analyze a broader concept of "ecosystems-based" management, encompassing hydrologic spatial scales from terrestrial to marine sources.

[6] *See,* Kristen M. Fletcher, *Regional Ocean Governance: The Role of the Public Trust Doctrine*, 16 DUKE ENVT'L. L. & POL'Y F. 187 (2006).

[7] Recent academic work has suggested managers in the public arena are not adopting ecosystem-based management principles. Part of the problem is a lack of agreement on a precise definition of ecosystem-based management. *See*, Arkema, KK., et al., *Frontiers in Ecology and the Environment*, 4(10): 525-532 (2006).

centralization of authority, and therefore power at the federal level.[8] This seems a logical solution, as such a management scheme ultimately depends on the ability to capture ecosystems on geographic scales that often extend beyond local, state, and even national borders.[9]

The legal problem with an expansive ecosystem-based approach is that it contrasts with traditional judicial precedent, and U.S. statutory principles aimed at unilateral federal control over state rights in coastal regions.[10] In the context of the U.S. Coastal Zone Management Act ("CZMA"), over thirty years of federal acknowledgment of state interests in coastal regions needs to be adequately considered.[11] Any proposal of

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[8] Both the Pew Oceans Commission, as well as the U.S. Commission on Ocean Policy, currently combined and renamed the Joint Ocean Commission Initiative ("JOCI"), along with international consensus through the Millennium Ecosystem Assessment, *Ecosystems and Human Well Being: Wetlands and Water*, have recently reported the major policy-driving mechanism requires, in most instances, a centralized, uniform approach based on ecosystem principles. Reports from the respective organizations detailing such policy recommendations can be found as follows:

Joint Ocean Commission Initiative, *From Sea to Shining Seas: Priorities for Ocean Policy Reform 8-10* (2006). Available at: http://www.jointoceancommission.org/press/press/release0613_assets/seareport.pdf (last visited: January 8, 2008);

Millennium Ecosystem Assessment, *Ecosystems and Human Well Being: Wetlands and Water Synthesis* (2005). Available at: http://www.maweb.org/documents/document.358.aspx.pdf (last visited: January 7, 2008).

[9] Some suggest a true ecosystem analysis is critical to properly protecting important aquatic resources. This extends from oceans and coastal areas, to inland rivers, streams, tributaries and wetlands, as well as to the terrestrial dry lands of a particular eco-region. For a discussion of ecosystem breadth, *see generally*, National Research Council, *Valuing Ecosystem Services: Toward Better Environmental Decisionmaking,* 59 (2005).

[10] See generally, 16 U.S.C.A §§ 1451-1464 (Coastal Zone Management Act).

[11] *Id.* at §1456(c)(1)(A) (The "Federal Consistency" Requirement).

further federal power over traditional state coastal lands will likely be met with harsh criticism.[12] It is more likely any successful approach must include state stakeholders in the decision making process.[13]

One pending question focuses on the judicial branch, and the limits of federal power over traditional state resources. Focusing on water, one must consider to what extent the federal government could justify control over ecosystem resources found to be outside the purview of traditional interpretations of "commerce."[14] As noted above, the purpose of this paper is to analyze the recent decision of the US Supreme Court in

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[12] *See,* National Governor's Association, Public Comment on Ocean Commission's Final Report (October 29, 2004). Available at: http://ocean.ceq.gov/comments/2_gov_assoc.pdf . Last visited (February 1, 2007). The comments from the governor's council highlighted the following points: "Maintain State Primacy;" "Avoid Federal Preemption." *See also*, Lawrence Juda, *The Report of the U.S. Commission on Ocean Policy: States Perspectives.* Coastal Management, vol. 34, pgs. 1-16 (2006) (Summarizing coastal state objections to a centralized, federal management scheme of coastal resources based on state sovereignty, and the current federal consistency requirements found in the CZMA).

[13] Supra, n. 8 (noting the emergence, and importance of "regional ocean governance" (ROG) entities).

[14] Supra, n. 2. The Commerce Clause power under the U.S. Constitution grants the federal government the ability to regulate activities that impact interstate commerce. This can occur between states, or wholly intra-state. *See generally, Wickard v. Filburn*, 317 U.S. 111 (1942). The key is to find the activity will tend to impact interstate commerce. The Commerce Clause would be the main source of power for the federal government to enact ecosystem-based management of water resources. However, there are other forms of "power" that may be used by the federal government. An example might be the spending power of the federal government. Many states comply with federal standards for no other reason than federal funds are made available to the state program. Indeed, much of the compliance seen by states to the federal guidelines of coastal management, under the Coastal Zone Management Act, is directly tied to federal funding of such state coastal programs.

Rapanos v. United States.[15] The question presented is to what degree *Rapanos* may be seen as judicial acceptance of federal claims over ecologically connected water resources considered to be outside the traditional notions of "commerce."[16] In the context of water control, this generally refers to limitations based on the definition of "navigability."[17] Is it possible *Rapanos* suggests judicial acceptance of federal jurisdiction based on an "ecosystem-connection" argument? At least one recent federal court of appeal decision applying *Rapanos* favors this possible expansion of federal control,[18] and such an expansion may be a prerequisite to uniform implementation of any policy favoring ecosystem-based management. Questions remain as to how extensive federal power over natural resources, especially those over "isolated" water bodies, will expand based on a long history of local control, and fundamental constitutional limitations.[19]

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[15] Supra, n.1.

[16] The question stems in great part from the judicially interpreted constraints to federal control placed on certain "isolated" water bodies (to be discussed further infra), and the scientific evidence suggesting these water bodies are nonetheless critical in the overall hydrologic cycle. *See generally*, *The Heinz Center: The State of the Nation's Ecosystems: Measuring the Lands, Waters, and Living Resources of the United States.* 21, 36 (2002).

[17] The U.S. Supreme Court has generally held water bodies (most importantly wetlands) are subject to federal jurisdiction and control under the Clean Water Act only when there is some substantial connection to *navigable waters*. The *navigable waters* requirement is itself attached to the *commerce* power from which the federal government derives its general power over terrestrial waters.

[18] *Northern California River Watch v. City of Healdsburg*, 457 F.3d 1023 (9th Cir. 2006).

[19] Recent congressional action is attempting to clarify the expanse of federal jurisdiction over wetlands. Representative James Oberstar, Chair of the House Transportation and Infrastructure Committee, plans to introduce a bill titled the *Clean Water Authority Restoration Act*. The bill would aim to clarify the scope of the Clean Water Act and its applicability to wetlands by codifying broad protection and specifically stating the law extends to intermittent streams, wet meadows, and several other types of water, including bodies not physically adjacent to larger, navigable waters.

II. The Future Policy of Ocean/Coastal Governance is Likely to Involve Ecosystem-Based Management in Some Measure.

A. The Call to Ecosystem-Based Management

The last ten years has seen an emphasis placed on a holistic review of near ocean resources in the United States unprecedented since the 1960's.[20] The two major domestic reports to emerge from this focus have been the PEW Oceans Commission Final Report of 2003,[21] and the U.S. Commission on Ocean Policy's Report of 2004.[22] In addition, the United Nations has engaged in an assessment of worldwide resources, to include marine resources, placing its findings in a report entitled *Ecosystems and Human Well-being; A Framework for Assessment*.[23] All of these reports, in one form or another, contain policy recommendations extolling the virtues of ecosystem-based management of ocean resources.[24] The academic community has followed suit, extolling the scientific wisdom of such a management approach.[25] In the U.S., policy responses have been relatively

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Available at: http://oberstar.house.gov/ (last visited: January 7, 2008).

[20] Modern coastal resource management stemmed from the Commission on Marine Science, Engineering, and Resources, also known as the "Stratton Commission." The Commission's final report to Congress entitled, "*The Nation and the Sea*," was submitted to Congress in 1969 and is credited as being the impetus for the Coastal Zone Management Act of 1972.

[21] Supra, n.3

[22] Supra, n.3

[23] Millennium Ecosystem Assessment. *Ecosystems and Human Well-being: A Framework for Assessment* (2003). Available at: http://www.maweb.org/documents/document.300.aspx.pdf (last visited: January 7, 2008).

[24] Supra, n. 8.

[25] Supra, n. 8

slow, with the U.S. Senate asking for a priority listing from the now-combined PEW/U.S. Commission alliance, renamed the Joint Ocean Commission Initiative ("JOCI").[26] More recently, the Joint Subcommittee on Ocean Science and Technology ("JSOST") has issued a priority plan for further research based on the aforementioned policy recommendations.[27]

Assuming Congress is prepared to move forward with the recommendations laid out by JOCI and JSOST, it remains to be seen what form such proposed regulation will take. The major source of federal regulation of coastal marine waters since 1972 has been the CZMA.[28] Under this scheme, the federal government has taken a joint-management role, encouraging states to develop plans within federal guidelines, and then mandating federal consistency requirements, whereby federal agencies actions must be consistent with the state plan.[29] Some have suggested this creates a "reverse" Supremacy Clause, giving state's superior rights over the federal government when it comes to coastal water regulation.[30] Others believe this is simply a case of contractual federalism,

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[26] Supra, n. 8

[27] National Science and Technology Council's Joint Subcommittee on Ocean Science and Technology. *National Ocean Research Priorities Plan and Implementation Strategy* (2007). Available at: http://ocean.ceq.gov/about/docs/orpp12607.pdf. (last visited: January 7, 2008).

[28] Supra, n. 10. Other federal laws have played a role in regulating coastal marine resources. These include the Clean Water Act, 33 U.S.C §1251, *et seq.*; and the Rivers and Harbors Act, 33 U.S.C. §401, *et seq.*

[29] Supra, n. 10 at §1456(c)(1)(A).

[30] *See*, Bruce Kuhse, *The Federal Consistency Requirements of the Coastal Zone Management Act of 1972: It's Time to Repeal This Fundamentally Flawed Legislation.* 6 OCEAN & COASTAL L. J. 77, (2001).

with no substantial change in the federal/state power structure.[31] Coastal state responses to ecosystem-based management, and thus greater federal control of the coastal zone, has been protectionist of state rights.[32] Based on such responses, it may be implementation of a federally controlled management plan will be mired in difficulties.[33]

III. From a Judicial Perspective, The Question of Whether Ecosystem Management is a Viable Federal Exercise Remains to Be Seen.

Outside of the legislative and political difficulties lie judicial barriers to ecosystem management. Specifically, the issue involves the question of federalism, and the Commerce Clause justification supporting federal regulation of the environment.[34] Concerning ecosystem management of marine systems, certain scientific opinion would make relevant for management purposes all components of the hydrologic cycle, including terrestrial sources.[35] Again, from the water-based environment, this would include bodies of water that clearly are not navigable, naturally occurring, nor subject to the ebb and flow of tide. As such, it seems jurisprudentially difficult to suggest an ecosystem-based management scheme for water resources, as science would include within the "ecosystem" classification bodies of water fragmented from traditional notions

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[31] *See*, John A. Duff, *The Coastal Zone Management Act: Reverse Pre-emption or Contractual Federalism?* 6 OCEAN & COASTAL L. J. 109 (2001).

[32] Supra, n.12.

[33] Supra, n. 12 (Noting State Governor's numerous objections to any plan equating to less state input and control).

[34] Supra, n. 14.

[35] *See generally,* Patrick Comer et al., *Biodiversity Values of Geographically Isolated Wetlands in the United States*, NatureServe (2005). *See also,* Stuart Pimm, *The Value of Everything*, Nature, May 15, 1997, at 231-32.

of "commerce." Thus, acknowledging the commerce confines surrounding federal jurisdiction; is it likely the judicial branch is willing to allow an expanded federal control over terrestrial water resources that are otherwise ecologically-connected to coastal water resources, even where a direct physical connection is lacking? The recent holding in *Rapanos* suggests an intriguing possibility.

IV. *Rapanos* Offers Potential Support for Extending Federal Rights Over Ecosystems, to Include Non-Navigable Waters.

A. *Rapanos* may extend the definition of "waters of the United States" based on a "Significant Nexus" test.

Rapanos is a Clean Water Act ("CWA")[36] case. However, the implications from a federal jurisdiction standpoint seem potentially far-reaching. *Rapanos* dealt with the meaning of "waters of the United States," under the CWA, and therefore the extent of federal jurisdiction over wetlands and other "non-navigable" waters.[37] There is a direct connection between such jurisdiction under the CWA, and the potential expansion of federal control over coastal resources, since both acts deal with "waters of the United States," and constitutional limits of federal power attached thereto. In order to better understand the core issue decided in *Rapanos*, and more importantly the effect for "ecosystem-based" management in general, a short history of federal jurisdiction of non-navigable water bodies under the CWA follows.

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[36] 33 U.S.C.A. §1251 *et seq.*

[37] *Rapanos v. United States,* 547 U.S. _____, 126 S.Ct. 2208 (2006).

1. Historical Developments of Federal Wetland Regulation.

Prior to *Rapanos*, the U.S. Supreme Court had previously dealt with the question of when "non-navigable" waters are subject to federal jurisdiction.[38] In *United States v. Riverside Bayview Homes Inc.*,[39] the Court determined federal jurisdiction extended to non-navigable bodies of water that are *physically adjacent*[40] to other bodies of water over which the federal government had jurisdiction. Importantly, the Court justified its decision, in part, on the inherent difficulties in establishing the *ecological* connection between *navigable waters* and adjacent wetlands.[41]

The Court went on to explain the importance of an "ecological" assessment based on hydrological connections. The Court noted, in relevant part: "The regulation of activities that cause water pollution cannot rely on…artificial lines…but must focus on all waters that together form the entire aquatic system."[42] However, the Court went on to

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[38] It has traditionally been assumed the federal government's jurisdiction regarding water was directly related to claims of *commerce*, as the Commerce Clause of the United States Constitution provided the main legal grounds for federal jurisdiction. Therefore, *commerce*, as defined by the U.S. Supreme Court, has always been directly related to *navigation*; the main ability of engaging in commerce is through the use of navigable waterways. *See generally*, *The Daniel Ball*, 77 U.S. 557 (1870); *United States v. Appalachian Electric Power Co.*, 311 U.S. 337 (1940).

[39] 474 U.S. 121, 106 S.Ct. 455 (1985).

[40] In the later *Rapanos* decision, this purported limit of defining *physically adjacency* as a test for federal jurisdiction is discussed in Justice Kennedy's concurring opinion.

[41] Supra, n. 39, at 131. The U.S. Supreme Court has indicated its affirmation of the *physically adjacent* rule set forth by the Army Corps of Engineers was based in large part upon Congress's approval of the Corps' regulations interpreting the CWA to cover wetlands adjacent to navigable waters. *Id.*, at 135-39.

[42] Supra, n. 39, at 134.

expressly note its decision was *not* based on a hydrological connection between the wetlands and adjacent bodies of water, and its decision did not address federal jurisdiction over wetlands that are *not* adjacent to navigable waters.[43] Rather, the Court limited its decision to water bodies that are clearly navigable in character, as well as non-navigable waters physically adjacent to such navigable waters.[44] Thus, although *Riverside Bayview* discussed the importance of an "ecosystem" approach in identifying important contributors to water pollution, it specifically limited CWA jurisdiction to water bodies with a physical adjacency to traditional navigable waters. This may have been a purposeful attempt to place "waters of the United States" in a statutory framework that did not offend constitutional limits on federalism. After *Riverside Bayview,* the question of federal jurisdiction over wetlands *not* physically adjacent to navigable water bodies remained unsettled. A further clarification was to come from the Court in a case dealing with migratory birds.

In *Solid Waste Agency of Northern Cook County v. United States ("SWANCC")*,[45] the Supreme Court limited federal jurisdiction over water bodies, where the connection to interstate commerce was based on a "migratory bird" argument, rather than proximity to adjacent navigable waters. In *SWANCC,* the Army Corps of Engineers attempted to claim jurisdiction over a body of water that the U.S. Supreme Court determined was "isolated," and maintained no direct "hydrological," or surface connections to otherwise navigable

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[43] Supra, n. 39, at 134.

[44] Supra, n. 39, at 134. It should be noted the Court's emphasis here was on one of ***physical adjacency***, rather than a ***hydrological connection*** between the non-navigable and navigable water bodies.

[45] 531 U.S. 159, 121 S.Ct. 675 (2001).

waters.[46] As such, federal jurisdiction could not attach to the water body based on its "isolated" status. The Court indicated federal jurisdiction, under commerce clause constraints, only applies to the following: (1) navigable waters; (2) waters that are physically adjacent to navigable waters; and (3) direct tributaries to navigable waters.[47]

The waters at issue in *SWANCC* were abandoned, man-made sand and gravel pits that had since flooded and contained permanent and seasonal ponds.[48] EPA attempted to claim jurisdiction over the bodies of water claiming the waters were used by migratory birds, which themselves were instrumentalities of interstate commerce.[49] The Court rejected this argument, and ultimately discussed the case in contrast to *Riverside Bayview*. The Court contrasted *SWANCC* from *Riverside Bayview*, claiming *SWANCC* was factually dissimilar because it dealt with wetlands that were *not* adjacent to navigable waters. This was meaningful for the Court, because where the Court had found Congressional intent for the CWA to cover *adjacent* water bodies; it could discern no such intent for *isolated* water bodies. As such, the Court dismissed federal jurisdiction over such lands.[50]

Importantly in *SWANCC*, the Court discussed the "significant constitutional questions" raised by the "migratory bird" rule. Rather than deferring to agency discretion as it had done in *Riverside Bayview*, the Court drew a line in the gravel pit, indicating an

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[46] *Id.,* at 160.

[47] *Id.,* at 172.

[48] *Id.*, at 159.

[49] *Id.*

[50] *Id.,* at 172.

extension of federal jurisdiction over *isolated* water bodies raised serious constitutional and federalism questions. Since the Court determined there was a lack of Congressional intent under the CWA to extend jurisdiction to these lands, it did not address the magnitude of these constitutional concerns. Thus, although it did not decide the constitutional issue directly, the Court did address the fundamental concerns associated with expanding federal jurisdiction into traditional state territory. Such an expanse of federal jurisdiction may be necessary to properly implement an ecosystem-based approach to protecting coastal marine resources.

Assumedly after *SWANCC*, any water body that was physically isolated from navigable waters, regardless of an ecological connection, did not rise to "waters of the United States," and was therefore not subject to federal jurisdiction. The Army Corps has read *SWANCC* narrowly, while some Courts of Appeal have taken *SWANCC* to have an expansive effect.[51]

Two years following the *SWANCC* decision, the PEW Oceans Commission Report was released, closely followed by the U.S. Commission on Ocean Policy. Both Commissions suggested an ecosystem-based approach to ocean management. Such an approach, if implemented from a truly scientific standpoint, would likely conflict with the general test of federal jurisdiction highlighted by precedents such as *SWANCC*. This is because ecosystem management would focus on factors outside of traditional notions of "navigability" and "commerce." The reason for this is because a true 'ecosystem"

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[51] *See generally, Rice v. Harken Exploration Co.,* 250 F.3d 264 (5th Cir. 2001). "Under *Solid Waste Agency,* it appears that a body of water is subject to regulation under the CWA if the body of water is actually navigable or is adjacent to an open body of navigable water." *Id.*, at 269.

approach would consider all relevant mechanisms affecting ocean resources; *all* inputs and outflows that tend to aggregate and affect the system over time.[52] Ultimately, such an analysis would include both natural and artificial bodies of water, including "isolated," non-navigable wetlands, which are not directly connected to larger navigable bodies of water. Previous judicial opinions, including *SWANNC*, seemed to limit the inclusion of potentially significant water bodies from federal regulation. This was true until the recent concurring opinion by Justice Kennedy in *Rapanos*.

Rapanos addressed a legal issue left unresolved in *Riverside Bayview* and *SWANCC* – whether "waters of the United States" extends to wetlands that are not physically adjacent to navigable waters. A four-justice plurality opinion held wetlands are subject to federal jurisdiction under the following limited circumstance: (1) where such waters are *physically adjacent* to waters of the United States; and (2) have a continuous surface connection with that water, making it difficult to determine where the water ends and the wetland begins.[53]

Such a test arguably limits what bodies of water can be included in federal jurisdiction, as Justice Scalia pointed out by referencing the terms "the" and "waters" as

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[52] For example, the amount of nitrogen carried by major U.S. rivers has increased dramatically in recent decades as a result of terrestrial activities, including deposits of nitrogen from *isolated* water bodies, which feed into larger, navigable waters. Nitrogen levels in the Mississippi River, which drains forty percent of the coterminous United States, have tripled since the 1950s. Nitrogen causes excess algae growth, reduces recreational and aesthetic values, and contributes to low dissolved oxygen conditions that can kill aquatic organisms. As a result, wetlands lost in the Mississippi watershed far upstream from the Gulf of Mexico can nonetheless contribute to the formation of "dead zones" that threatens the Gulf's fisheries and aquatic resources. See generally, Judy L. Meyer et al., *American Rivers, Where Rivers Are Born: The Scientific Imperative for Protecting Small Streams and Wetlands* (2003).

[53] *Rapanos*, 126 S.Ct. 2208, 2220-21.

creating a narrowed scope, thus limiting federal jurisdiction.[54] However, the plurality went further, noting the following bodies of water are specifically *excluded* from federal jurisdiction: "channels through which water flows intermittently or ephemerally or channels that periodically provide drainage for rainfall."[55]

The result of the plurality test is to severely limit any federal jurisdiction based on claims of ecological connection; as such connections would reasonably expand the definition of "waters" to include any hydro-geological connection, whether natural or artificial, isolated or adjacent. Under such an interpretation, it may be difficult to claim ecosystem-based management of coastal resources, certainly if such management requires an extension of coastal ecosystem into terrestrial watershed areas, and includes water bodies disjoined from "navigable waters," or otherwise failing to meet the continuous surface connection prong of the plurality test in *Rapanos*. From a scientific standpoint, it is clearly arguable coastal ecosystems include such bodies of water.[56]

However, due to the "plurality" nature of the decision in *Rapanos*, the concurring opinion of Justice Kennedy has provided a basis for federal management based on ecosystem criteria.[57] It can be argued the Kennedy concurrence brings back to the

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[54] *Id.* at 2220.

[55] *Id.* at 2222.

[56] See generally, Malcolm Gladwell, *The Tipping Point: How Little Things Can Make a Big Difference* (2002) (noting coastal ecosystems include the headwaters, tributaries, wetlands, and surface geology of the surrounding watershed *because* these land areas and waterways *directly* contribute to the environmental health of coastal ecosystem habitats).

[57] There is some debate as to the proper method for determining the precedental effect of the *Rapanos* decision, due to the plurality nature of the decision. The First Circuit has suggested *either* test (Scalia's plurality or Kennedy's concurrence), could be used by the

discussion of federal jurisdiction "connections" to water that go beyond physically identifiable connections, and incorporate deeper, ecosystem-based criteria.

B. The "Significant Nexus" test established in *Rapanos* seems the equivalent to an "ecosystem-based" argument supporting federal jurisdiction.

In a concurring opinion, Justice Kennedy wrote that whether a wetland constitutes "waters of the United States" depends on whether it has a "significant nexus" to navigable waters.[58] According to Kennedy, the relevant "nexus" exists if the wetland "alone or in combination with similarly situated lands in the region, significantly affects the chemical, physical and biological integrity of navigable waters."[59]

In contrast to the plurality opinion, Kennedy's "significant nexus" test, adopted in part from *SWANCC*, looks to a cause/effect relationship between water bodies. Rather than rely on a "physical connection," as required by the plurality, Kennedy goes farther, encompassing scientific principles to include physical, chemical, and biological connections. By doing so, it can be argued Justice Kennedy is embracing the more exacting, scientific language to determining the cause/effect relationship between water bodies stated in CWA. Such an approach may be seen as extending federal jurisdiction to cases of water connections found based on principles of science, rather than the traditional physical connections of commerce.[60]

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court's to support, or disprove, jurisdiction over bodies of water. *See*, *United States v. Johnson*, 467 F.3d 56 (1st Cir. 2006).

[58] *Rapanos*, 126 S.Ct. 2208, 2236, 2248.

[59] *Id.*

[60] Previous U.S. Supreme Court cases, generally resolving issues of federal jurisdiction based on "navigability" have included, to some degree, notions of ecological connections.

It should be noted Kennedy's "significant nexus" test is not *all* encompassing. Kennedy limited its expanse by noting that when the effect of the wetland on water quality in navigable waters is "speculative or insubstantial," the wetland does not fall within "waters of the United States."[61] However, even with this limitation, the "significant nexus" test clearly adopts a broad-based scientific standard between bodies of water for purposes of determining federal jurisdiction.[62] The important determination under the significant nexus test is that the water body is likely to play an important role in the integrity of an *aquatic system* that includes navigable waters.[63] Thus, a hydrologic connection is neither immediate proof, nor necessary, to establish a "significant nexus."[64] This suggests an attack on federal jurisdiction over certain water bodies can be rebutted based on scientific proof showing hydro-geologic connections. Thus, the scientific inquiry takes the place of a legal inquiry based on definitions of navigability.

The implications of such a scientific inquiry regarding water body connections is substantial. First, such an inquiry makes "ecological connections" a standard practice of

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For instance, see *Cf. Kaiser Aetna v. United States*, 444 U.S. 164, 183-84, 100 S.Ct. 383, 394-95 (1979) (describing the "ebb and flow" test for defining "commerce" to include the "geographic, chemical, and environmental limits…" of coastal water bodies).

[61] Supra, n. 58, at 2248.

[62] Indeed, in order for one to show a wetland connection to navigable waters is "speculative or insubstantial," they would likely have to engage in a scientific analysis of the cause/effect relationship between the wetland and larger navigable waters. This kind of showing clearly requires, as a prerequisite, strong scientific understand of the hydrologic connections between at-issue water bodies.

[63] *Rapanos* at 2248.

[64] *Id.*

establishing legal proof in cases of water body connectivity.[65] Second, such an inquiry leads the way for scientific inquiry as the primary evidentiary tool is such cases, *whether attempting to prove or disprove* a contested "connection" between distinct water bodies. Such connections can only bolster claims of broad federal jurisdiction over ecologically linked water resources. This is essential if the United States is serious about a centralized policy regarding coastal marine resources.

C. The "Significant Nexus" test may be seen as a judicial acquiescence of an expansive federal role over coastal marine resources.

It should be of no surprise that Kennedy's pronouncement of a "significant nexus" test has sent ripple effects throughout the legal and policy community. Shortly after *Rapanos*, the Environmental Protection Agency ("EPA") issued internal guidance limiting determinations of "waters of the United States" to the traditional notions of "navigable waters." However, EPA and the Army Corps of Engineers are apparently working now to implement regulations in-line with the "significant nexus" test.[66]

The "significant nexus" test reintroduced in *Rapanos* seems to bridge the gap between traditional economic considerations regarding navigability and commerce for federal jurisdiction purposes, and scientific recommendations for ecosystem-based management schemes, which allow for the proper protection of vital natural resources

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[65] *Id.,* at 2249 (Justice Kennedy indicating the Army Corps of Engineers, absent specific regulations, will have to make a *significant nexus* determination on a case-by-case basis).

[66] As of January 27, 2007, EPA and/or the Army Corps of Engineers had not yet instituted any specific guidelines for implementation of the *Rapanos* decision. However, in an official statement to the Subcommittee of Fisheries, Wildlife, and Water of the Committee of Wildlife and Public Works of the Senate, EPA indicated it would soon be establishing guidelines implementing the *Rapanos* decision. EPA Statement available at: http://www.epa.gov/water/speeches/060801bg.html. Last visited: January 7, 2008.

that are in the nation's common interest. The true effect of the "significant nexus" test will likely be seen in the subsequent judicial decisions interpreting *Rapanos*, and their general willingness to adopt ecological connections as a basis for federal jurisdiction.[67]

D. Federal Courts of Appeal interpreting *Rapanos* have followed the "Significant Nexus" approach to determining federal jurisdiction.

The opinions citing *Rapanos* have differed in their approach to determining "waters of the United States." However, whether the reading is expansive or restrictive, courts seem to be addressing the "ecological connections" of aquatic systems in their analysis.

One example is *Northern California River Watch v. City of Healdsburg*.[68] The Ninth Circuit applied Justice Kennedy's "significant nexus" test to a pond and its connected wetlands that were separated from a navigable river by a man-made levee and where there was a *subsurface* hydrologic connection between the pond and the river.[69] The details of this case are important, as they highlight, in a specific example, exactly what "connections" are being considered between a water body and navigable waters.

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[67] Although recent decisions interpreting *Rapanos* have generally employed the Kennedy "substantial nexus" test, federal courts have generally been divided as to the extent in which federal jurisdiction should be applied to wholly intrastate bodies of water. The arguments surround the question of federalism, as well as difficult interpretations of precedent following the *SWANNC* decision. For an in-depth review of this issue see; Gregory T. Broderick, *From Migratory Birds to Migratory Molecules: The Continuing Battle Over the Scope of Federal Jurisdiction Under the Clean Water Act*, 30 COLUM. J. ENVTL. L. 473 (2005).

[68] 457 F.3d 1023 (9th Cir. 2006).

[69] *Id.*

Northern California dealt with a charge that a city was discharging sewage from its' waste treatment plant into *waters* covered under the CWA.[70] The water body at issue was a rock quarry pit known as "Basalt Pond."[71] The quarry had previously filled with water from a surrounding aquifer. The aquifer, in turn, was located next to the Russian River, a *navigable water*.[72]

The district court held for Plaintiffs, citing *Riverside Bayview*.[73] The Court of Appeal reviewed the decision in light of *Rapanos*. The Court applied the *significant nexus* test established by Justice Kennedy. In finding a *significant nexus*, the Court held the following facts important: (1) mere physical adjacency of the pond to the river is not sufficient for CWA protection; (2) the pond and river are separated by a man-made levee; (3) the water in the pond seeps into the river, albeit by *subsurface* connections.[74] According to the Court, these "connections" between the river and the pond "significantly affect the chemical, physical, and biological integrity of other covered waters [Russian River] understood as navigable in the traditional sense."[75]

In summary, the Ninth Circuit completed a review of the Basalt Pond/Russian River connection by assessing, as Kennedy noted from the CWA, the physical, chemical,

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[70] *Id.*, at 1026.

[71] *Id.*

[72] *Id.* (Plaintiff's were arguing the city was required to obtain a National Pollution Discharge Elimination System ("NPDES") permit under the CWA, but had failed to do so).

[73] *Id.*

[74] *Id.* at 1030.

[75] *Id.*, citing *Rapanos*, 124 S.Ct. at 2248.

and biological connections between the two bodies of water. In doing so, the Court found ample evidence, founded in ecological principles, to support a significant nexus between the pond and the river.[76] It is doubtful any of the prior precedent in this area, to include *Riverside Bayview* and *SWANNC*, would yield a similar result, at least not in terms of a focus on *all* possible ecological connections. Thus, we see at least one occasion where the judiciary was willing to allow for federal jurisdiction to be expanded to waters based on an ecological connection between the waters, in-line with Justice Kennedy's concurring opinion. This may suggest traditional limitations of federal jurisdiction over "navigable waters," highlighted in *SWANCC*, eroding in favor of a more expansive definition based on ecological connections.[77] This seems a necessary step if the U.S. is to move towards a comprehensive ocean management scheme based on principles of ecosystem-based management.

V. A Comprehensive, Centralized Federal Scheme May be Necessary to Adequately Protect Resources on an Ecosystem-Scale.

It is clear ecosystem-based management is a preferred "tool" for future coastal management in the United States, although precise implementation of such a "tool"

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[76] *Id.*

[77] One comment that should be made is the general reluctance by the Court in this field of water protection to address the constitutional limits placed on such control measures. In each of the cases mentioned herein (*Riverside Bayview, SWANNC, and Rapanos*), the Court has mentioned, to some degree, the potential Constitutional limits of regulations attempting to exert federal control over varied water bodies. However, the Court has specifically limited its analysis to a statutory construction of Congressional intent, rather than addressing the Constitutional issue. It is quite possible such an issue would be addressed directly in a federal attempt to regulate coastal resources on an ecosystem-based approach. *See,* Congressional proposal to re-define "wetlands" under the CWA. Supra, n. 19.

remains uncertain.[78] Current executive and legislative proposals, to include the development of marine reserves and marine protected areas, as well as the development or regional ocean governance boards, are moves in the direction of ocean-based management.[79] However, competing interests sometimes frustrate federal/state partnerships. It may be the ultimate responsibility of ensuring a uniform, broad-based approach to protecting coastal waters will require a centralized authority. Otherwise, there are likely too many possibilities for divergent views and interests to accommodate.[80]

Any ability of the federal government to ensure proper ecosystem-based management principles will lie, in part, in the limitations on such federal power. One traditional limitation is the federal government's authority to regulate water bodies separated from "navigable" waters. Justice Kennedy's "significant nexus" test under *Rapanos* changes the traditional "navigability" inquiry from one of spatial proximity, to one surrounding a more scientific connection. Since most hydrological processes are connected, depending on the scale of causal relationship used, this test leaves the "door" open for greater federal regulatory power into activities impacting the quality of ocean waters. It may be such a power never needs to be flexed, opting rather for a coalition between federal and state interests. However, such a "trump" card may indeed be a

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[78] Supra, n. 9.

[79] Supra, n. 6.

[80] "However, in reality, states may not always cooperate intensively or continuously. For political purposes, states' chief executives may insist upon negotiation between Governors, resulting in intermittent progress. A lack of intensive cooperation may lead to protracted negotiation and disagreement, exacerbating delay. Rather than representing the interests of the region, members of these interstate bodies typically represent the interests of their respective jurisdictions." Supra, n. 6, at 197-98.

necessary bargaining chip to help states with unilateral interests focus on the need to engage in measures aimed at improving marine water quality from an "ecosystem" perspective.

VI. Conclusion

Rapanos is informative for a number of reasons. First, it was altogether unclear prior to *Rapanos* whether a federal authority for ecosystem-based management of *all* important water resources was possible. *Riverside Bayview* and *SWANCC* seemed to clearly limit federal jurisdiction to either *navigable waters* themselves, or bodies of water immediately *adjacent* to *navigable waters*. This is certainly in line with the *SWANCC* decision, where the court seemed to favor a categorical denial of federal jurisdiction over certain water bodies regardless of their ecological connection. From an ecosystem perspective, this would likely exclude water bodies critically important in the hydrologic cycle, but otherwise physically separate from navigable waters. Indeed, the plurality opinion in *Rapanos* supports the physical connection requirement, further alienating ecologically relevant water bodies.[81]

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[81] There has been much discussion, mostly in the way of Congressional Committee testimony, discussing the plurality nature of the *Rapanos* decision. To summarize, four justices wanted to limit EPA, and therefore federal jurisdiction, under the previously described Scalia standard. One justice, Kennedy, wanted a determination of federal jurisdiction to be based on *ecological* connections, the described "substantial nexus" test in cases of water bodies that are not traditionally considered "navigable." Finally, four dissenters wanted to allow substantial deference to the administrative agency's determination of federal jurisdiction. In light of this distribution, some commentators have suggested the Kennedy decision is more restrictive than the dissenters, and therefore a step-back in the extension of federal jurisdiction to non-navigable water bodies. For example, see the written statement of Professor Jonathan H. Adler to the Senate Committee on Environment and Public Works. Available at: http://www.law.case.edu/faculty/images/news/Adler_Rapanos_Testimony.pdf (last visited: January 28, 2007). Regardless of the ongoing interpretations of *Rapanos*, the implications of reintroducing the "substantial nexus" test as a primary mechanism for

The "substantial nexus" test adopted by Justice Kennedy, and followed in a recent federal court decision, gives hope to the advocates of an "ecosystem-based" approach to water management. Regarding marine waters, recent science would suggest the most productive areas – coastal waters – cannot be adequately protected without protecting terrestrial waters that flow into coastal basins.[82] Thus, the hydro-geologic cycle requires a systematic approach of both terrestrial and marine environments (an ecosystem approach) in order to fully protect the quality of such environs.

A truly integrative, ecosystem-based policy of resource management cannot work in the United States without uniformity amongst government branches. From solely the perspective of the judiciary, the traditional limitation on federal jurisdiction over water bodies has focused on the connection of the federal regulation to commerce.[83] Constitutionally, this is certainly to be expected. However, the definition of "commerce," at least in terrestrial contexts, has generally been limited to a direct association with the judicial definition of "navigability." This is problematic, as it is historically rooted in an "economic" perspective, rather than the more holistic scientific approach to connectivity. The result has been the abandonment of water bodies – both natural and man made – that play important roles in the hydrologic cycles, and therefore have direct connections;

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determining water body connections, especially after *SWANNC*, seems to open the "judicial" door for an expansion of federal authority based on claims of ecological connections. This is of critical importance for any future development of federal coastal regulation based on an ecosystem-based management approach.

[82] Supra, n. 52.

[83] Supra, n. 38. It is clear in *Rapanos*, as well as other precedent in this area has, in-part, been affected by the statutory language of the CWA (maintaining the chemical, biological, and physical integrity). Beyond the statutory construction, it also appears the Court has fully considered the Constitutional limits placed on Congress.

whether physical, chemical, or biological, to the aquatic world. Justice Kennedy's expression of what can be considered "waters of the United States" to take accounting of this scientific "worldview" is likely a necessary perception shift needed if centralized ecosystem-based management is to be realized.

The importance of Kennedy's contribution, especially in the current political environment, deserves special attention. Moreover, those in favor of an ecosystem-based management regime for coastal resources should pay close attention to the factors driving the outcome in this case. Included are the judicial questions presented, the possibility of congressional clarification, as well as the "federalism" issue implicit in this area of regulation. The future development and refinement through the lower courts, including which test should be adopted, should be followed closely. Indeed, the battleground may be different when a future ecosystem-based federal management scheme is challenged, but the arguments will likely be the same.