Priority, Probability, and Proximate Cause: Lessons from Tort Law About Imposing ESA Responsibility for Wildlife Harm on Water Users and Other Joint Habitat Modifiers

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PRIORITY, PROBABILITY, AND PROXIMATE CAUSE: LESSONS FROM TORT LAW ABOUT IMPOSING ESA RESPONSIBILITY FOR WILDLIFE HARM ON WATER USERS AND OTHER JOINT HABITAT MODIFIERS

By
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In Babbitt v. Sweet Home Chapter of Communities for a Greater Oregon, the Supreme Court held that proving unlawful take under section 9 of the Endangered Species Act (ESA) requires proof that any challenged habitat modifying activity is the proximate cause of harm to an endangered or threatened animal. This Article applies the rich, but largely ignored, body of tort law to this proximate cause inquiry and concludes that the current approach of federal wildlife agencies and courts to causation of wildlife harm, particularly in cases involving water users, fails to properly account for background risks, multiple habitat modifiers, and, in prior appropriation settings, for priority. More specifically, the Article considers whether and how causation of harm can be proven by a preponderance of the evidence when the background risk of harm is equal to or greater than the risk imposed by a particular habitat modification; whether and how causation can be proven when there are multiple habitat modifiers; and whether and how causation can take account of priority of appropriation. In addition, in those instances where there is sufficient proof that harm is the proximate result of the actions of multiple habitat modifiers, the Article suggests that the agencies and courts reconsider their current approach of effectively imposing joint and several responsibility without any right of contribution and instead move toward the equitable apportionment approaches that have come to dominate a reforming tort law. Where instream flow is the habitat issue, allocation by priority, on balance, seems the wisest course, particularly given the ESA's explicit commitment to cooperation with states on water resource issues. In other joint habitat modification situations where individual contribution to the harm is discernable, responsibility would

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best be allocated in proportion to those individual contributions. Finally, to the extent the agencies and courts are concerned that either of these two approaches might be too great a burden, they should consider some good faith obligation to join major habitat modifiers or some form of contribution action.

I. INTRODUCTION ................................................................. 596

II. CAUSATION UNDER SECTION 9 OF THE ENDANGERED SPECIES ACT ................................................. 601
   A. Section 9 and Habitat Modification as Prohibited Take ................................................. 601
   B. The Regulated Community’s Concerns with the Harm Regulation ......................... 603
   C. The Sweet Home Decision ................................................................................. 605
      1. Upholding the Harm Rule from Facial Challenge .............................................. 605
      2. Sweet Home’s Guidance on Causation and Harm to Individual Animals ......... 605
   D. Proving Causation and Individual Injury After Sweet Home ......................... 609
      1. Historic vs. Future Injury .............................................................................. 609
      2. The Meaning of “Significantly Impairing Essential Behavioral Patterns” ......... 610
      3. Background Risk, Increased Risk, and Proof of Individual Injury ...... 613
      4. The Species Occupation Requirement .......................................................... 617
      5. Proving Causation in Cases with Multiple Habitat Modifiers ..................... 618
   E. Causation and Prior Appropriation .................................................................... 620
   F. Circumventing Causation Problems by Imposing Vicarious Liability ........ 623

III. ALLOCATING RESPONSIBILITY FOR HARM AMONG MULTIPLE HABITAT MODIFIERS ...... 630
   A. Civil Penalties Under Section 11 ....................................................................... 631
   B. Apportionment of Damages in Tort Cases .......................................................... 632
   C. Applying Tort Law Apportionment Principles to Section 11’s Civil Penalty Provision .............................................................. 636
   D. Injunctive Relief Under Section 11 and Habitat Conservation Planning .... 637
   E. Applying Tort Law Apportionment Principles to Section 11’s Injunctive Relief Provision .............................................................. 640

IV. POTENTIAL CONCERNS WITH APPLYING PRIORITY STATUS TO QUESTIONS OF CAUSATION AND APPORTIONMENT ......................................................... 644
   A. Fairness to Junior Appropriators ....................................................................... 644
   B. Fifth Amendment Implications ....................................................................... 648

V. CAUSATION UNDER SECTION 7 .............................................................................. 650

VI. CONCLUSION ................................................................................................. 656

I. INTRODUCTION

The backbone of western water law is the basic notion of first-in-time is first-in-right. Beginning water law students have long been taught that under the law of prior appropriation, if there is not enough water in a stream to satisfy the reasonable uses of all diverters, junior users are obligated to close their head gates and pray for rain. Such occurrences have been rare because
historically western states have built so much water storage (read dams) that short-term drought can be covered for even the most junior diverter. Although the assertion of priority is rare, it would be hard to imagine a more fixed principle in water law. It is increasingly evident, however, that this fixed principle of priority is being ignored when the Endangered Species Act (ESA) is used to curtail diversions to assure sufficient instream flow for threatened and endangered species. Rather than impose the regulatory burden on junior appropriators, the federal wildlife agencies charged with enforcing the ESA—the Fish and Wildlife Service (FWS) within the Department of Interior and the recently renamed NOAA Fisheries, formerly and still more commonly called the National Marine Fisheries Service (NMFS), within the Department of Commerce—have exercised discretion to pursue whichever appropriator they prefer. In several agency enforcement efforts, senior water rights holders have borne the brunt of obligations to provide more water. Although such efforts have been relatively infrequent, in part because the ESA has not been vigorously applied to harms caused by instream flow problems, they are likely to increase. As of July 2003, some eighty-four fish species had been listed as threatened or endangered in the nineteen western states.

The purpose of this article is to raise questions in advance of this likely increase about how the ESA should be applied where instream flow deficits cause harm to threatened or endangered wildlife. To that end, the article

2 See NMFS is Now: NOAA Fisheries, 19/20 MMPA BULLETIN 1 (2000) (describing the reasons for the name change from NMFS to NOAA Fisheries). Despite the name change, this article will refer to the Service by the acronym NMFS rather than as NOAA Fisheries because NMFS is the language typically used in the cases, regulations, and literature. NOAA, of course, is the common acronym for National Oceanic and Atmospheric Administration.
3 See, e.g., David E. Filippi, The Impact of the Endangered Species Act on Water Rights and Water Use, 48 ROCKY MTN. MIN. L. INST. 22-1, 22-10 to 22-16 (2002) (discussing federal efforts in the Klamath, Methow Valley, and Walla Walla River basins to reduce diversions under section 9 and section 7 without respect to the seniority of the state-created water rights).
4 See U.S. FISH AND WILDLIFE SERVICE, THREATENED AND ENDANGERED SPECIES SYSTEM (TESS)—DETAILED SPECIES ADHOC REPORT MODULE, at http://ecos.fws.gov/tess_public/TESSSpeciesReport?action=--form (last visited July 20, 2003) (allowing search of the number of endangered and threatened fish species in Regions 1, 2, 6, and 7 which comprise the seventeen western states plus Alaska and Hawaii). Fish, of course, are not the only species for which watercourses are the critical component of their habitat. See U.S. FISH AND WILDLIFE SERVICE, U.S. LISTED VERTEBRATE ANIMAL SPECIES REPORT BY TAXONOMIC GROUP, at http://ecos.fws.gov/servletiTESSWebpage?module=113 (last visited July 20, 2003) (allowing search of other water-dependent species such as frogs and salamanders, which have been listed as threatened or endangered).
5 Plainly, lack of water is not the only cause of river harm. Watercourse health is a function of the quantity and quality of water, both of which are related and impacted by a variety of factors. The quantity of water in any particular watercourse depends not only upon the extent of any diversions from the watercourse and any hydrologically connected aquifers but also on land use which partially dictates the timing and quantities of runoff. The quality of the water is a function of three basic variables: point and nonpoint source pollution and water quantity (simply put: the less water the greater the concentration of any particular pollutant). Thus, for any watercourse whose health is threatened, two broad allocation questions emerge: 1) who will be responsible to insure that more water remains in the watercourse?, and 2) who will be
reflects upon two basic principles of tort law, namely causation and allocation of responsibility in cases of harm caused by multiple tortfeasors. Although the key Supreme Court decision on the enforcement of the ESA—Babbitt v. Sweet Home Chapter of Communities for a Greater Oregon\(^6\) (Sweet Home)—requires the wildlife agencies to prove that a person’s habitat modifying activity, such as diverting water, is the proximate cause of harm to an endangered or threatened animal, the rich body of tort scholarship, legislation, and case law on causation has largely been ignored by the agencies and the courts. Similarly, the teaching of tort law has been disregarded when it comes to deciding how responsibility for harm should be allocated among multiple habitat modifiers. By overlaying the learning of tort law on the system of prior appropriation, the legal doctrine of first-in-time is first-in-right that controls most water allocation in the states west of the hundredth meridian, this article hopes to illuminate alternative approaches to allocating responsibility for river harm that would be not only more equitable but more efficient.\(^7\)

A simple hypothetical illustrates some of the causation and allocation issues that arise in cases of river harm. Assume that Smith, Jones, and Williams are irrigators and the only three diverters along a hypothetical river which flows entirely within a state applying the prior appropriation doctrine. The typical total flow of the river is ten cubic-feet per second (cfs). Smith has a 1900 water right to divert four cfs, Jones a 1930 water right to divert four cfs, and Williams a 1990 water right to divert one cfs. In a drought year where the river produces only eight cfs of water, Smith and Jones continue to divert their full amounts but Williams must cease diverting.

Assume that a particular fish, which has long dwelt in the river, has suffered marked population decline since 1990. Fisheries biologists recently determined that to spawn successfully the fish needs two cfs of water. Because in a typical year Smith, Jones and Williams divert nine of the available ten cfs, the fish has not been getting enough water. Now, suppose the Fish and Wildlife Service (FWS) wants to ensure that the fish will have the necessary two cfs per year. What happens? Should FWS be treated like just another aspiring junior appropriator? Some (most likely Smith, Jones, and Williams) might believe that FWS should be required to get a state water permit for the last one cfs of river water and then either buy or condemn responsible for reducing pollution in the watercourse? The focus of this article is on the first question. In other words, who will be responsible for increased instream flow? Must diverters and pumpers reduce their withdrawals and, if so, which diverters and pumpers?


\(^7\) More clearly defining the relative security of water rights improves efficiency in two senses. First, as Ronald Coase suggests, efficient allocation of property is much more likely to occur when water rights are plainly defined. R. H. Coase, The Problem of Social Cost, 3 J.L. & ECON. 1, 19 (1960). See also Robert Cooter & Thomas Ulen, Law and Economics 89 (3d ed. 2000) ("[B]argainers are more likely to cooperate when their rights are clear and less likely to agree when their rights are ambiguous."). Second, when the relative security of water rights is transparent, senior diverters can make longer-term investments in higher-value uses because they will have increased confidence in the security of their right. See infra notes 106–08 and accompanying text for a more detailed discussion of these principles.
another one cfs from Smith, Jones, or Williams. FWS (and the local environmental community) will likely take a different view. From their perspective, all three farmers showed up after the fish, and besides, they might add, the farmers' water rights were always subject to reasonable regulation. However firmly the farmers might hold to the view that FWS is just another appropriator, they (and surely their lawyers) know that FWS is entitled to regulate to protect the fish. While they may still retain some hope that the regulation will go "too far," and amount to a compensable taking of their water rights, they also know that such takings claims are long shots.

But if FWS can regulate to ensure two cfs for the fish, that does not answer the question of who will have to give up the necessary one cfs of water. One approach would simply be to pin the blame on the diverter who caused the harm to the fish. As discussed below, this is in fact an element that FWS must prove under the ESA. But who was the but-for and proximate cause of the harm to the fish? Were Smith, Jones, and Williams all joint causes because but for any one of their diversions, there would be enough water for the fish? This is the wildlife agencies' current approach to causation. On the other hand, did Williams cause the harm by appropriating the critical one cfs? After all, before Williams started farming, there was enough water for the fish and for Smith and Jones. To put this argument another way, does the background law of prior appropriation matter to the causation analysis? Recall that in the case of natural drought where the river produces only eight cfs, Williams would be forced to stop his diversion but Smith and Jones could continue. Should FWS's demand to leave two cfs in the river—what some have called a "regulatory drought" because the regulation rather than nature determines there is not enough water to satisfy existing uses—be treated any differently than a natural drought where the last diverter on a river is the first one off it?

If FWS can overcome the difficulties of proving causation in cases of multiple diverters with different priorities, how then should responsibility be allocated among the various diverters? Borrowing from tort law principles, one approach would be to treat Smith, Jones, and Williams as jointly and severally liable. In that case, FWS could take the fish's full needs from, say, Smith alone. This, in essence, is the approach adopted by FWS, although with a particularly inequitable twist. Whereas in tort law, when joint and several liability is imposed, a tortfeasor typically has a right of contribution, under the approach to the ESA adopted by FWS, Smith can bear the entire regulatory burden without any ability to seek contribution from Jones or Williams. Thus, if joint and several liability is to be the rule of allocation, a subsidiary question arises with respect to whether there should

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8 See Fillipi, supra note 3, at 22-18 to 22-22 (citing cases).

9 In a recent presentation, Professor Brian Gray criticized the metaphor of "regulatory drought" and its companion "artificial drought." He suggested the term "hybrid drought" is more accurate because the lack of water is usually a function of both natural and regulatory causes. Brian E. Gray, Remarks at the 48th Annual Rocky Mountain Mineral Law Institute (July 26, 2002). Professor Gray's paper was published, without the discussion of hybrid drought, as Takings and Water Rights, 48 ROCKY MTN. MIN. L. INST. 23-1 (2002).

10 See infra Part III.B (discussing apportionment of tort liability).
be some right of contribution. Instead of taking any sort of joint and several liability approach, the three irrigators could also be treated as if they were proportionately and severally liable. The regulatory need for additional water could be divided between them according to their relative contribution to the problem or on a pro rata basis. Yet a third alternative to apportionment would be to allocate with reference to priority, in which case Williams would bear the entire responsibility.

As suggested above, the purpose of this Article is to begin considering the important but largely ignored questions raised by this hypothetical. The Article begins its inquiry in Part II by considering the vexing questions surrounding proof of causation under section 9 of the ESA which prohibits persons from taking endangered species. Specifically, it explores the meaning and subsequent application of the Supreme Court’s decision in *Sweet Home* that to violate the take prohibition of section 9, habitat modification must proximately cause injury to an individual animal. Although the focus of this Article is on harm caused by lack of stream flow, Part II of the Article looks at causation more generally. In part, this broader consideration is necessary because most of the ESA case law involves habitat modification where the harm is not caused by a lack of water but by other activities like timber harvesting or land-use development. But this broader inquiry is not merely foundational; it is also intended to illustrate how questions about causation might be resolved in other habitat modification contexts. Part II does, however, focus on the intersection of causation and prior appropriation and suggests that wildlife agencies and courts should take account of the priority of water rights in determining whether a particular diversion is the cause of a prohibited take.11

11 The Endangered Species Act is not, of course, the only legal lever for reallocating water to satisfy public needs. The questions about causation and allocation raised in the article will have application to other contexts as well. Allocation between multiple diverters has, for example, arisen as an issue under the public trust doctrine. *See infra* notes 229–35 and accompanying text (discussing these public trust doctrine cases). Another area where there are particular concerns about equitable allocation of responsibility among multiple habitat modifiers is under the Clean Water Act’s TMDL program. Prior to the 1972 Clean Water Act (CWA), the focus of water pollution control was on establishing water quality standards. Federal Water Pollution Control Act, 33 U.S.C. §§ 1251–1387 (2000). The idea behind water quality standards was that state and local governments would decide upon the use they wanted to make of a particular water body and then regulate the water to assure that it was clean enough to support that use. This approach was mostly a failure, in large part because it was difficult to assign fault to any particular polluter for overall river harm. Thus, Congress, in the CWA, imposed technology-based standards and the NPDES permitting system which were designed to avoid tracing and allocation problems by imposing clear and enforceable obligations on individual point source polluters. A vestige of the water quality standards approach, however, remained in section 303(d). Under that section, states were to submit to EPA a list identifying so-called Water Quality Limited Segments (WQLS), namely, those waters that fail to meet applicable water quality standards despite the application of technology standards. *Id.* § 1313(d)(1)(A). This identification process results in the so-called “303(d) list.” The states were then to prioritize the WQLS according to the severity of their pollution and proposed use, and then establish total maximum daily loads (TMDLs) of pollutants for those waters “at a level necessary to implement the applicable water quality standards.” *Id.* § 1313(d)(1)(A), (C). According to EPA’s regulations, a TMDL takes into account the natural
Part III of the Article then turns to the related issue of allocation. It discusses how allocation of responsibility for harm caused by habitat modification has thus far been a function of agency discretion rather than a consistent and principled approach that takes account of multiple contributions to habitat modification and/or to the priority of harmful water diversions. Part III suggests that responsibility for civil penalties and injunctive relief under the ESA could be allocated more equitably in accordance with relative responsibility and that, in the water context, the analysis of responsibility should include a diverter's priority status. Part IV addresses potential concerns with consideration of priority status in determining causation and allocation in the river environment and, more broadly, with proportional allocation involving multiple habitat modifiers in any sort of habitat. Part V then briefly considers how causation and allocation apply to section 7 of the ESA which obligates federal agencies not to fund, carry out, or permit any activity likely to jeopardize the existence of a protected species. This inquiry is necessary because the federal government is such a major player on the rivers of the West that the federal wildlife agencies can often ignore section 9 and simply use section 7 to seek additional water from federal water projects (and thereby from private parties who divert pursuant to contracts with federal agencies like the Bureau of Reclamation).

II. CAUSATION UNDER SECTION 9 OF THE ENDANGERED SPECIES ACT

A. Section 9 and Habitat Modification as Prohibited Take

Section 9 of the ESA makes it unlawful for any person, which includes not only private persons but also federal and state agencies, to “take” any species identified as endangered under the ESA’s listing process. Although


13 Id. § 1538(a)(1)(B) (take prohibition). The listing process is set forth in 16 U.S.C. § 1533 (2000). A species is endangered when it “is in danger of extinction throughout all or a significant portion of its range.” Id. § 1532(6). A species is threatened when it “is likely to become an
the take prohibition of section 9 is limited to *endangered* species, FWS, by regulation, has also prohibited take of species listed as *threatened*.\(^\text{14}\) Because the term *take* in wildlife law historically most often referred to hunting, trapping, or otherwise capturing wildlife, one might assume that section 9's take prohibition would rarely, if ever, implicate water diversions. But the take prohibition includes more than such traditional activities. "Take" is defined in the ESA as "to harass, *harm*, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."\(^\text{15}\) Although this definition could still perhaps be read as compatible with the historical understanding of *take*,\(^\text{16}\) the language, particularly the term "harm," is also subject to a broader interpretation. And by regulation the federal wildlife agencies have given it a broader interpretation. FWS has defined *harm* as "an act which actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering."\(^\text{17}\) NMFS's regulations are basically the same but add language more directly related to the fishery which is the focus of NMFS's endangered species jurisdiction. Habitat modification or degradation causes harm, according to NMFS, when it "actually kills *fish* or wildlife by significantly impairing essential behavioral patterns, including, breeding, *spawning*, rearing, *migrating*, feeding or sheltering."\(^\text{18}\)


\(^\text{14}\) Under section 4(d) of the ESA, the Secretary "may by regulation prohibit with respect to any threatened species those acts which are prohibited with respect to endangered species in section 9. 16 U.S.C. § 1533(d) (2000). Using this authority, the Secretary decided that the take prohibition of section 9 will apply to all threatened species except in those instances where the Secretary develops a special 4(d) rule for a particular species. *See* 50 C.F.R. § 17.31(a) (2002). Unlike the Secretary of the Interior and FWS, the Secretary of Commerce, through NMFS, has not adopted such a blanket 4(d) rule. It issues a separate rule for each listed species. Nevertheless, it has generally applied the take prohibition to threatened species. Robert L. Pischman & Jaelith Hall-Rivera, *A Lesson for Conservation from Pollution Control Law: Cooperative Federalism for Recovery Under the Endangered Species Act*, 27 COLUM. J. ENVTL. L. 45, 64 (2002). Thus, this article treats section 9's take prohibition as if it is applicable to all listed species because that is most often the case.


\(^\text{16}\) Babbitt v. Sweet Home Chapter of Cmty's. for a Greater Or. (Sweet Home), 515 U.S. 687, 717-21 (1995) (Scalia, J., dissenting) (suggesting that each word in the take definition can be understood within the confines of the traditional, historical understanding of "take").

\(^\text{17}\) 50 C.F.R. § 17.3 (2002).

\(^\text{18}\) *Id.* § 222.102 (emphasis added). NMFS's list of activities that may constitute take gives some indication of the potential breadth of the harm regulation in the river environment:

1. Constructing or maintaining barriers that eliminate or impede a listed species' access to habitat or ability to migrate;
2. Discharging pollutants... into a listed species' habitat...
3. Removing water or otherwise altering streamflow...
4. Conducting timber harvest, grazing, mining, earth-moving or other operations which
B. The Regulated Community's Concerns with the Harm Regulation

The idea that traditional habitat-modifying activities like home-building, farming, grazing, and irrigation could be unlawful takes caused significant angst in the regulated community from the regulation's inception. In part, this concern was a function of uncertainty about when and what sort of habitat modification would amount to a prohibited take. In part, it was a function of the way in which courts began to apply this harm rule. Soon after the regulation was promulgated, for example, environmental groups filed a citizen suit under the ESA, accusing the state of Hawaii of taking the endangered palila finch (*Loxioides bailleui*) because Hawaii permitted sheep to graze on mamane-naio tree seedlings (*Myoporum sandwicense*) that when fully grown, could have been used by future finches for nesting and foraging.\(^{19}\) The Ninth Circuit's agreement\(^ {20}\) that such unforeseen and remote impacts could be a take had troubling implications for the regulated community. The FWS harm regulation did not seem to include any limits on what sort of harm might be considered the proximate result of a habitat modifying activity. And by prohibiting harm to future members of the finch population, the regulation included harm not just to particular animals but to the population as a whole.\(^ {21}\)

The concerns of the regulated community came to a head in the early 1990s when the listing of the northern spotted owl (*Strix occidentalis caurina*), red-cockaded woodpecker (*Picoides borealis*), and marbled

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\(^{19}\) Palila v. Haw. Dep't of Land & Natural Res. (*Palila III*), 649 F. Supp. 1070, 1075 (D. Haw. 1986), aff'd, Palila v. Haw. Dep't of Land & Natural Res. (*Palila IV*), 852 F.2d 1106 (9th Cir. 1988). The district court was confident that this constituted a take: "If the habitat modification prevents the population from recovering, then this causes injury to the species and should be actionable under section 9." *Id.* at 1077. The United States District Court for the District of Hawaii and the Ninth Circuit each had an opportunity to weigh in during an earlier battle between environmental groups and the state over Palila habitat. Palila v. Haw. Dep't of Land & Natural Res. (*Palila I*), 471 F. Supp 985 (D. Haw. 1979), aff'd, Palila v. Haw. Dep't of Land & Natural Res. (*Palila II*), 639 F.2d 405 (9th Cir. 1981). While some refer to both cases from the 1979–1981 litigation simply as *Palila I*, and to the two cases from the 1986–1988 litigation as *Palila II*, this article borrows the shorthand used by the Ninth Circuit in *Palila IV*, and numbers each case individually. *See Palila IV*, 852 F.2d at 1107 (describing the history of the various lawsuits).

\(^{20}\) *Palila IV*, 852 F.2d at 1107.

\(^{21}\) This in fact was the *Palila III* district court's explicit interpretation of the regulation:

A finding of "harm" does not require death to individual members of the species; nor does it require a finding that habitat degradation is presently driving the species further toward extinction. Habitat destruction that prevents the recovery of the species by affecting essential behavioral patterns causes actual injury to the species and effects a taking under section 9 of the Act.

murrelet (*Brachyramphus marmoratus marmoratus*) brought section 9 to timber country and FWS began threatening timber harvesters with criminal prosecution. In one case, “the government alleged that the harvest of less than one-percent of the home range area of a protected bird almost two miles from its site center had to be enjoined to prevent a take because the circle had less than the desired forty-percent cover,” which biological models predicted was necessary for adequate breeding, feeding, and sheltering.22 In another case, FWS initiated a criminal prosecution against three Department of Defense employees for “taking [r]ed-[c]ockaded [w]oodpeckers by conspiring to permit the harvest of [r]ed-[c]ockaded [w]oodpecker habitat.... No dead woodpeckers were found and the sole 'harm' alleged was permitting cavity trees where woodpeckers might nest to be harvested, thereby leaving woodpecker colonies in the vicinity without sufficient habitat in which to forage.”23 The common thread in most of the cases was that harm was equated with habitat modification that either increased risk for identified birds or for birds that biological models predicted would likely use the habitat. From the timber community’s perspective, this focus was all wrong. As far as they were concerned, take should never have been extended beyond its historical meaning, and if habitat modification had to be the standard, at least FWS ought to prove that the habitat modification had actually killed or injured some identifiable animal.

This opposition eventually prompted a challenge to the entire harm regulation. Led by the forest products industry, a group of property owners styled as the Sweet Home Chapter of Communities for a Greater Oregon argued that FWS had exceeded its statutory authority in promulgating the broad definition of harm (NMFS’s harm regulation was not challenged because it was only adopted in December 1999).24 “Take,” the plaintiffs contended, was limited to direct applications of force and did not include habitat modification that might indirectly kill or injure wildlife. Their challenge made its way to the Supreme Court in 1995 in *Sweet Home.*25

22 Albert Gidari, *The Endangered Species Act: Impact of Section 9 on Private Landowners,* 24 ENVTL. L. 419, 421–22 n.5 (1994); see id. at 426–27 (describing FWS guidelines which “effectively prohibit any harvesting activity within a circle centered on a nest site, or center of activity with a radius between 1.2 to 2.2 miles, depending on the location”); see id. at 436–38 (recounting how Anderson-Middleton Logging Company was threatened with prosecution when it proposed to harvest 72 acres of its old growth timber because a pair of spotted owls were nesting on federal lands almost two miles distant).

23 Id. at 422 n.7.


C. The Sweet Home Decision

1. Upholding the Harm Rule from Facial Challenge

The Supreme Court, by a six to three vote, rejected the property owners' argument and upheld FWS's "harm" regulation. Its holding was clear that habitat modification, which causes harm either directly or indirectly, could be a take. Given that the case involved a facial challenge to the regulation, this result was not particularly surprising. The Secretary only needed to point to one legitimate application of the harm rule to prevail. And it was hard for the court to imagine that habitat modification like draining an entire pond was not just as harmful to a protected fish as finding itself on a fisherman's hook or in his net.

Because the facial challenge allowed the Court to focus on the easy case, it did not need to address more perplexing causation and allocation questions. Causation is clear when one farmer drains the entire pond, but what about when the farmer merely reduces the available water and increases the likelihood, as a matter of conservation biology, that a protected species would be killed or injured. Prior to *Sweet Home*, FWS had found harm in such increased risk cases. Could it still do so after *Sweet Home*? Moreover, even if causation was clear in the case of the individual farmer, what about in cases of multiple diverters or habitat modifiers? If a fish turns up dead, was it caused by one diverter, all the diverters, or natural causes? And if multiple causes exist, who bears the burden of remedying the problem? Unfortunately, although appropriate given the procedural posture of the case, the Court gave only limited guidance on the causation question and no guidance at all on the allocation question. In the following section, the article explores what little the *Sweet Home* Court did say about causation and how subsequent decisions have built upon that slim foundation.

2. Sweet Home's Guidance on Causation and Harm to Individual Animals

For its regulation to pass muster under a facial challenge, FWS did not need to defend its more aggressive application of the harm rule. It needed only to find a legitimate application of the harm rule which, as discussed above, was not particularly difficult. Nevertheless, in responding to plaintiffs' briefing and Justice Scalia's dissent, the majority felt the need to assure habitat modifiers that there were limits to the scope of the harm rule. In footnote 13, the Court stated:

The dissent incorrectly asserts that the Secretary's regulation (1) "dispenses with the foreseeability of harm" and (2) "fail[s] to require injury to particular animals." As to the first assertion, the regulation merely implements the statute,

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26 *Id.* at 688, 708.
27 *See id.* at 699–700 (using the example of a drained pond to point out the flaws in the challengers' argument).
and it is therefore subject to the statute’s “knowingly violates” language, see 16 U.S.C. §§ 1540(a)(1), (b)(1), and ordinary requirements of proximate causation and foreseeability. Nothing in the regulation purports to weaken those requirements. . . . As to the dissent’s second assertion, every term in the regulation’s definition of “harm” is subservient to the phrase “an act which actually kills or injures wildlife.”

Footnote 13 indicated that before habitat modification could be a take, FWS must prove that the actions of the allegedly taking party were (or, in the case of injunctive relief, will be) the proximate cause of death or injury to particular animals. The plaintiffs viewed this emphasis as a significant victory, but left unresolved was exactly what the Court meant by “proximate cause” and “injury to particular animals.”

As suggested by its reference to the “ordinary requirements of proximate causation and foreseeability,” the Sweet Home majority did not see a need to elaborate on a principle that is applied hundreds of times a day in run-of-the-mill torts cases. But if courts decide on proximate cause issues everyday, that does not mean they decide them the same way everyday. The element of proximate cause is notoriously malleable. Definitions and verbal formulae abound. In some cases, the focus is on foreseeability, as it seems to be for the Sweet Home majority. In others, the test is directness. In many cases it is both. Such verbal formulas leave ample discretion for determining whether an action will be considered the proximate cause of harm. As Judge Andrews famously remarked in Palsgraf

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Footnote 13: Id. at 700 n.13 (modification in original) (internal citations omitted). See also id. at 699 (noting that there are “strong arguments that activities that cause minimal or unforeseeable harm will not violate the [ESA] as construed in the ‘harm’ regulation”); id. at 697 n.9 (“We do not agree with the dissent that the regulation covers results that are not ‘even foreseeable . . . no matter how long the chain of causality between modification and injury.’ Respondents have suggested no reason why either the ‘knowingly violates’ or the ‘otherwise violates’ provision of the statute—or the ‘harm’ regulation itself—should not be read to incorporate ordinary requirements of proximate causation and foreseeability.”) (internal citations omitted).

20 See Steven P. Quarles et al., Sweet Home and the Narrowing of Wildlife “Take” Under Section 9 of the Endangered Species Act, 26 Envtl. L. Rep. (Envtl. L. Inst.) 10,003 (1996) (arguing that Sweet Home’s focus on proximate cause and particular animals narrowed the range of cases in which habitat modification will be a take).

21 515 U.S. at 700 n.13 (emphasis added).

22 “There is perhaps nothing in the entire field of law which has called forth more disagreement, or upon which the opinions are in such a welter of confusion.” W. PAGE KEETON ET AL., PROSSER AND KEETON ON THE LAW OF TORTS 263 (5th ed. 1984).

23 As Judge Andrews observed in his Palsgraf v. Long Island Railroad Co. dissent, to determine proximate cause a court must ask itself whether there was a natural and continuous sequence between cause and effect. Was the one a substantial factor in producing the other? Was there a direct connection between them, without too many intervening causes? Is the effect of cause on result not too attenuated? Is the cause likely, in the usual judgment of mankind to produce the result? Or, by the exercise of prudent foresight, could the result be foreseen? Is the result too remote from the cause, and here we consider remoteness in time and space.

v. Long Island Railroad Co. (Palsgraf): 33 “What we do mean by the word ‘proximate’ is that, because of convenience, of public policy, or a rough sense of justice, the law arbitrarily declines to trace a series of events beyond a certain point. This is not logic. It is practical politics.” 34

The Sweet Home majority recognized the ambiguities of proximate cause analysis, observing that “all persons who must comply with the law will confront difficult questions of proximity and degree.” 35 Although the Court’s refusal to wade into specifics was certainly appropriate given the facial nature of plaintiffs’ challenge, one can understand habitat modifiers’ continuing concern over the ambiguities of proximate cause analysis when the ESA imposes not only civil, but criminal, sanctions for take. 36

While the majority’s elaboration of limits to the harm rule was sparse, Justice O’Connor’s concurrence offered more detail on what proximate causation could mean for section 9. She stated:

The task of determining whether proximate causation exists in the limitless fact patterns sure to arise is best left to lower courts. But I note, at the least, that proximate cause principles inject a foreseeability element into the statute, and hence, the regulation, that would appear to alleviate some of the problems noted by the dissent. See, e.g., post, at 719 (describing “a farmer who tills his field and causes erosion that makes silt run into a nearby river which depletes oxygen and thereby [injures] protected fish”).

In my view, then, the “harm” regulation applies where significant habitat modification, by impairing essential behaviors, proximately (foreseeably) causes actual death or injury to identifiable animals that are protected under the Endangered Species Act. Pursuant to my interpretation, Palila [IV]—under which the Court of Appeals held that a state agency committed a “taking” by permitting mouflon sheep to eat mamane-naio seedlings that, when full grown, might have fed and sheltered endangered palila—was wrongly decided according to the regulation’s own terms. Destruction of the seedlings did not proximately cause actual death or injury to identifiable birds; it merely prevented the regeneration of forest land not currently sustaining actual birds. 37

Although she did not give much more content to proximate cause, Justice O’Connor did set a marker by specifically disavowing the second round of the Palila litigation, which had been a source of concern for the regulated community. Unfortunately, because the majority did not comment on

33 162 N.E. 99 (N.Y. 1928)
34 Id. at 103 (Andrews, J., dissenting).
35 Sweet Home, 515 U.S. at 708.
36 A person who knowingly violates the take prohibition faces a civil penalty of up to $25,000 and a criminal fine of up to $50,000 and imprisonment for up to one year. See 16 U.S.C. § 1540(a) (2000) (providing civil penalties); id. § 1540(b) (providing criminal violations). Moreover, enforcement of section 9 is not wholly within the discretion of the Secretary. Citizens may sue to enjoin any person from engaging in an activity which may result in a take and to compel the Secretary to enforce the take prohibition. See id. § 1540(g).
37 Sweet Home, 515 U.S. at 713–14 (O’Connor, J., concurring) (first modification in original).
Justice O'Connor's proximate cause hypotheticals, it is difficult to discern whether they agreed.\textsuperscript{38}

Intertwined with the issue of proximate causation is whether the habitat modification must cause harm to a population or to an individual animal. To return to Justice O'Connor's hypothetical, even setting aside the issue of remoteness and foreseeability that is her focus, does it kill or injure a salmon to cover the gravel where it spawns with silt? On the one hand, the individual health of the spawning salmon is unaffected by the silt. Indeed, the salmon will soon die in any event. However, if the gravel is covered, the salmon's eggs will suffocate. According to NMFS' harm regulation,\textsuperscript{39} causing siltation is harm because it "significantly impair[s] essential behavioral patterns, including . . . spawning."\textsuperscript{40} Justice Scalia in his \textit{Sweet Home} dissent argued that this sort of harm is harm to the population of fish and not any individual.\textsuperscript{41} However, Justice O'Connor, and presumably the majority, were willing to recognize this sort of interference with spawning as harm to the individual fish, provided the foreseeability hurdle could be overcome: "One need not subscribe to theories of 'psychic harm,' to recognize that to make it impossible for an animal to reproduce is to impair its most essential physical functions and to render that animal, and its genetic material, biologically obsolete. This, in my view, is actual injury."\textsuperscript{42}

Although Justice O'Connor was willing to recognize interference with spawning, breeding, feeding, or sheltering as harm to individual animals, she did not mean that any harm would do. To the contrary, the only examples of habitat modification that she recognized as causing harm were those that "completely prevent[ed]" or made "impossible" breeding.\textsuperscript{43} For Justice

\textsuperscript{38} Its silence has been the source of some continuing confusion about whether the majority (by Justice Stevens) intended to limit take claims to cases of death or injury of individual animals or whether it meant to include injuries at a population level. Recall that at the end of footnote 13 the Court remarks that "every term in the regulation's definition of 'harm' is subservient to the phrase 'an act which actually kills or injures wildlife.'" \textit{Id.} at 700 n.13 (internal citations omitted). The regulation's use of the term "wildlife" creates ambiguity because seemingly it can refer to either the species as a whole or to an individual member of the species. Under this view, the Court can be read as saying that population-level harm is sufficient to constitute a take. But this reading of footnote 13, and the harm regulation itself, is unpersuasive. If the term "wildlife" is understood as a reference to the species as a whole, it would not have made sense to refer to a single "act" which "kills" the species. Single acts almost always kill animals, not species or populations. Moreover, the Court offered the statement as an answer to the dissent's criticism that the rule "failed to require injury to particular animals." It would have been disingenuous for the Court to suggest that the "actually kills or injures wildlife" language satisfied the dissent's concern if the Court really intended to recognize population-level harm. Particularly when the straightforward answer is more logical, there is no reason to assume such disingenuousness on the part of the Court. Finally, elsewhere in the opinion, the Court noted that "the Government cannot enforce the section 9 prohibition until an animal has actually been killed or injured." \textit{Id.} at 703.

\textsuperscript{39} The NMFS regulation is relevant because salmon are within NMFS jurisdiction as anadromous fish that spend most of their life in the sea.

\textsuperscript{40} 50 C.F.R. § 222.102 (2002).

\textsuperscript{41} \textit{Sweet Home}, 515 U.S. at 719–20.

\textsuperscript{42} \textit{Id.} at 710 (O'Connor, J., concurring) (internal citation omitted).

\textsuperscript{43} \textit{Id.}
O'Connor, merely making spawning more difficult (i.e. increasing the risk that spawning would not occur), would not be enough. She appeared to believe that FWS's regulation was only viable if its reference to “significantly impairing essential behavioral patterns,” meant that the behavior was totally prevented rather than merely hindered. In proximate cause terms, O'Connor's approach suggested that increased risk would not be a proximate cause of harm to a particular individual because that individual could beat the odds. Only if the habitat modification made essential behaviors impossible could one be confident that it would be the cause of individual injury.

It is difficult to know whether the majority shared Justice O'Connor's view that habitat modification had to prevent or make impossible breeding, spawning, feeding, or sheltering before it would constitute injury to particular animals. It could be that the majority would have emphasized the word "significantly." They did not say. Exactly how much impairment was necessary was left to lower courts. Since Sweet Home, they appear to have been gravitating toward Justice O'Connor's narrow view, but as explained below, there remains plenty of room for ambiguity and confusion.

D. Proving Causation and Individual Injury After Sweet Home

1. Historic vs. Future Injury

Prior to the Sweet Home decision, in Forest Conservation Council v. Rosboro Lumber Co., an environmental group sued to enjoin a lumber company from logging forty acres of private lands adjacent to a nesting site of two threatened northern spotted owls. The district court refused to grant an injunction, concluding the ESA requires historic or current harm to a protected species. The Ninth Circuit reversed, finding an "imminent threat" that is "reasonably certain" to harm an endangered or threatened species.

44 50 C.F.R. § 17.3 (2002).
45 The confusion over the causation inquiry is not only a function of the Sweet Home majority's silence but it also flows in part from the traditional problem of distinguishing the elements of duty and proximate cause. As first year torts students learn, liability decisions can usually be stated as a matter of duty or proximate causation. This is another of the basic insights of the Cardozo and Andrews dialogue in the famous Palsgraf case. There, the issue was foreseeability, which was alternatively stated as an issue of duty or proximate cause. To Cardozo, the railroad had a duty to protect its passengers from foreseeable risks and the allegedly bizarre manner in which Helen Palsgraf was injured was not the sort of accident the railroad had a duty to prevent. Andrews, on the other hand, assumed that the railroad breached a duty by knocking the package out of the boarding passenger's arms and then asked whether that breach of duty was the proximate cause (foreseeable cause) of the harm to Helen Palsgraf. See generally Palsgraf, 162 N.E. 99 (N.Y. 1928). Applications of the harm regulation are no different. Thus, one court might say that the harm regulation imposes a duty not to make impossible breeding, feeding, and sheltering; whereas, another court may say that harm is not a foreseeable result of habitat impairments that do not make such activities impossible. The conclusion is the same but the emphasized element is different. This article largely looks at the issue as one of proximate cause, but it should be evident that proximate cause arguments could be restated in terms of duty and vice-versa.

46 50 F.3d 781, 784 (9th Cir. 1995).
constitutes a “taking” under section 9 of the ESA. As the Ninth Circuit saw it, this standard was supported by the overall purpose of the ESA; moreover, “the injunctive relief authorized by the citizen suit provision is by its very nature directed at future actions.” After the Supreme Court’s decision in Sweet Home, a group of defendants in Marbled Murrelet v. Babbitt argued that Sweet Home nullified the Ninth Circuit’s decision in Rosboro Lumber. As they saw it, the Court’s individual injury requirement obligated FWS to produce a dead animal (corpus delicti) even in cases of injunctive relief. There needed to be, they claimed, proof of historic injury to support a finding of “harm.” The Ninth Circuit rejected this argument and reaffirmed that “a reasonably certain threat of imminent harm” to an endangered or threatened species is sufficient to show a violation of section 9.

2. The Meaning of “Significantly Impairing Essential Behavioral Patterns”

On one level, Marbled Murrelet seems plainly correct. FWS should not have to wait until an animal is actually killed or injured before it can seek injunctive relief. If FWS can prove that it is reasonably certain that a proposed action will actually kill or injure a particular animal, an injunction should issue. The more difficult question in Marbled Murrelet, however, was whether the proposed logging would proximately cause death or injury to a particular animal. The evidence in Marbled Murrelet showed that within the area of proposed timber harvest, there had been one hundred detections of the birds and that in many instances those birds had exhibited “occupied behavior,” although no nests had been found. From this evidence, several experts testified that the proposed harvest would “likely harm marbled murrelets by impairing their breeding and increasing the likelihood of attack.

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47 Id.
48 Id. at 785 (noting that forcing plaintiffs to “wait until after a harm has been inflicted would render their claims moot before they become ripe” and be contrary to the ESA’s purpose to “halt and reverse the trend toward species extinction, whatever the cost”) (internal citations and quotations omitted).
50 Id. at 1064.
51 Id. This articulation of the standard built on earlier Ninth Circuit case law. See Nat’l Wildlife Fed’n v. Burlington N. R.R., 23 F.3d 1508, 1512 (9th Cir. 1994) (“While we do not require that future harm be shown with certainty before an injunction may issue, we do require that a future injury be sufficiently likely.”) (emphasis in original). A number of courts have adopted Marbled Murrelet’s standard that a “reasonably certain threat of imminent harm to a protected species” is sufficient to prove harm. Defenders of Wildlife v. Bernal, 204 F.3d 920, 925 (9th Cir. 1999); Forest Conservation Council v. Rosboro Lumber Co., 50 F.3d 781, 784 (9th Cir. 1995) (including within the definition of “harm” an imminent threat that is reasonably certain to injure a protected species); Coho Salmon v. Pac. Lumber Co., 30 F. Supp. 2d 1231, 1242 (N.D. Cal. 1998) (recognizing that a section 9 violation can occur “when a wholly private action threatens imminent harm to a listed species”) (internal quotations and citations omitted); House v. United States Forest Serv., 974 F. Supp. 1022, 1029 (E.D. Ky. 1997) (noting that “the ESA does not require that the harm to the endangered species have already occurred”).
52 Marbled Murrelet, 83 F.3d at 1067.
by predators on the adult murrelets as well as the young.” These facts presented the first opportunity to test the meaning of *Sweet Home* and the weight of Justice O’Connor’s concurrence. Because the harvest would only impair breeding and increase the chance of predation, the facts appeared insufficient to satisfy Justice O’Connor’s suggestion that the logging effectively prevent the “detected” birds from breeding or sheltering. In proximate cause terms, increased risk to a population did not create a foreseeable risk of harm to any particular individual. In a blow to the O’Connor position, the Ninth Circuit said that the evidence was sufficient to meet *Sweet Home’s* requirement of actual injury to particular animals.

Justice O’Connor’s approach, however, made a comeback in two subsequent district court decisions in the Ninth Circuit. In *United States v. West Coast Forest Resources Ltd.*, the court rejected the United States’s effort to enjoin a timber harvest where the timber to be harvested was part of the area used for foraging by a spotted owl. Focusing on the word “essential” in the harm regulation, the court held that the United States had to prove that the area to be harvested was “essential to the owl’s survival.” Interference with foraging was not enough. As long as the owl would still have other areas to forage, there was no take. *West Coast Forest Resources* thus took an approach more akin to that of Justice O’Connor. The habitat modification must prevent, not just hinder or impair, breeding, feeding or sheltering.

Another district court in the Ninth Circuit took a similar approach in *Greenpeace Foundation v. Mineta*. There, the issue was whether NMFS’s operation of a lobster fishery caused a take of the endangered monk seal which fed on lobsters. The court denied Greenpeace’s motion for summary judgment because there was a factual dispute about whether the “lobster plays such an essential role in the monk seal diet that a reduction of lobster prey dooms the monk seal to extinction.” The court later softened the standard to say that it needed evidence that the lobster comprised “a significant and essential portion of the monk seal diet.” But like the court

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53 *Id.* at 1067–68.
54 *Id.*
56 See 50 C.F.R. § 17.3 (2002) (“Such [an] act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.”) (emphasis added).
59 The plaintiffs also alleged that the bottomfish fishery took monk seals because the gear harmed monk seals and because fishermen at times clubbed or shot monk seals who tried to take the fish from their lines. *Id.* at 1135. The court held the evidence that monk seals had been “killed, hooked, and poisoned in connection with bottomfishing” proved a take. *Id.* at 1136. Given the direct, forcible nature of these takes, they fit within any definition of the statutory term.
60 *Id.* at 1134.
61 *Id.*
in *West Coast Forest Resources*, its message was that mere hindrance with breeding, feeding, or sheltering was not enough.\(^6^2\)

This same issue has been playing out in other circuits. In *Hawksbill Sea Turtle v. FEMA*,\(^6^3\) plaintiffs sued to enjoin FEMA’s construction of temporary housing in the aftermath of Hurricane Marilyn.\(^6^4\) They argued that FEMA’s activities would take two protected species of sea turtle by adversely affecting their “feeding and sheltering patterns by causing increased discharge of partially treated sewage effluent and sediment runoff into Vessup Bay.”\(^6^5\) Plaintiffs’ biologists testified that the runoff would kill sponges and sea grasses in the Bay which were the primary source of food for the turtle.\(^6^6\) The court, however, refused the injunction because the plaintiffs “failed to show that the sponges and sea grasses located in Vessup Bay are the only food source for the [s]ea [t]urtles or that the [s]ea [t]urtles are food limited species.”\(^6^7\) Like *West Coast Forest Resources* and Justice O’Connor’s *Sweet Home* concurrence, the court’s view was that to be a take, habitat modification must prevent feeding, not just hinder it.\(^6^8\) Or again, to put it in causation terms, proof that an activity will merely hinder breeding, feeding, sheltering, or spawning is too speculative and remote a basis for concluding that the activity will proximately cause actual death or injury to a particular animal.

The First Circuit has long been notable for its rather narrow view of what constitutes harm. In *American Bald Eagle v. Bhatt*,\(^6^9\) a pre-*Sweet Home* case, petitioners sought to enjoin continued deer hunting on a bald

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\(^6^2\) Interestingly, in an earlier ruling in the same case, the district judge had concluded that plaintiffs were likely to prevail on their section 9 claim because the case was entirely analogous to *Palila* (discussed supra notes 19–21 and accompanying text). Greenpeace Found. v. Daley, 122 F. Supp. 2d 1110, 1121 (D. Haw. 2000). The court believed it enough that the lobster played “an important role” in the monk seal’s diet. Id. The court did not cite or discuss *Sweet Home* or Justice O’Connor’s criticism of *Palila*. Apparently, the court had done more study by the time of its second ruling.

\(^6^4\) Id. at 533.
\(^6^5\) Id. at 554.
\(^6^6\) Id.
\(^6^7\) Id. (emphasis added). The court observed that the sea turtles might be able to find food somewhere other than Vessup Bay and that plaintiffs had failed in their burden to prove that was not possible. Id.

\(^6^8\) The court took a similarly narrow approach with respect to the endangered Virgin Islands tree boa (*Epicrates monenesis granti*), which plaintiffs also claimed was threatened by the construction. Employing reasoning akin to the Ninth Circuit in *Arizona Cattle Growers’ Ass’n v. United States Fish and Wildlife*, 273 F.3d 1229 (9th Cir. 2001), discussed infra notes 85–88 and accompanying text, the court first rejected an argument that the construction had killed tree boas because no evidence established that tree boas had been on the site during construction. *Hawksbill Sea Turtle*, 11 F. Supp. 2d at 552. It then held that testimony from plaintiffs’ expert that boas would later migrate to the site and be harmed by the residents or that the residents’ cats and dogs would venture into the remaining habitat in search of the boas as too speculative. Id. at 553. Finally, taking away a chunk of the boas’ habitat was not enough to prove take, said the court, because plaintiffs presented “no direct evidence that [t]ree [b]oas have died or been injured as a result of changes in their feeding and sheltering patterns,” or that there was “any general decline in the population of the [t]ree [b]oas.” Id. at 554.

\(^6^9\) 9 F.3d 163 (1st Cir. 1993).
eagle (*Haliaeetus leucocephalus*) reservation on the grounds that eagles would be poisoned by ingesting lead shot found in unrecovered deer carcasses. The court held that because petitioners presented no evidence that any eagles previously had “actually ingested lead slug,” that any eagles ate deer carcasses “containing lead slug,” or that any eagles were poisoned by lead slug, they failed in their burden of proving the hunt would cause “actual harm” to the eagles. In contrast to the expert testimony about “likely harm” that was sufficient in *Marbled Murrelet*, the First Circuit emphasized that showing a “significant risk of harm” was not enough. The court chastised the plaintiffs for asking it to “establish that a one in a million risk of harm is sufficient to trigger the protections of the ESA.” In proximate causation terms, the court was simply foreshadowing the approach of Justice O’Connor in *Sweet Home*: Take cannot be proved by testimony of unforeseeable or remote harms. The First Circuit has continued to take this narrow approach post-*Sweet Home* as well.

3. Background Risk, Increased Risk, and Proof of Individual Injury

Although the courts appear to be moving in Justice O’Connor’s direction, there remains significant uncertainty about the extent of behavioral impairment necessary to show harm. The root of the uncertainty is in discerning when population-level risks determined by conservation biologists are sufficient to show individual harm. A couple of hypotheticals help explain why that is the case.

Consider a river system that is degraded by diversions, point and nonpoint source pollution, and hydroelectric projects. The population of an endangered fish in the river system has been declining over time as these various river uses have increased. The best biological evidence indicates that any individual endangered fish has a five percent chance of surviving to maturity in the river. Before any human uses of the river, fifty percent of the fish reached maturity. Plaintiff wants to enjoin a new diversion on the river and its experts are prepared to testify that the diversion will impair the

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70 Id. at 164–65.
71 Id. at 167 n.6.
72 Id. at 165–67.
74 *Am. Bald Eagle*, 9 F.3d at 167 n.5.
75 Id. at 165.
76 See *Strahan v. Linnon*, 187 F.3d 623, 1998 WL 1085817, at *4 n.6 (1st Cir. July 16, 1998) (finding no taking where the risk of a vessel striking a northern right whale (Balaena glacialis) was a “mere possibility”); *Strahan v. Coxe*, 127 F.3d 155, 165 (1st Cir. 1997) (finding a “taking” where the evidence indicated that 11 northern right whales were found entangled in fishing gear and 57% of “all [n]orthern [r]ight whales have scars indicating prior entanglement”); United States v. Town of Plymouth, 6 F. Supp. 2d 81, 84 (D. Mass. 1998) (granting a preliminary injunction against certain off-road vehicle (ORV) use because of evidence that “a total of 25 piping plover chicks ([*Charadrius melodus*] and two adults were found dead in ORV tire ruts”). See generally Alicia M. Griffin, Note, Beyond “Harm”: Abandoning the Actual Injury Standard for Certain Prohibited Takings Under the Endangered Species Act by Giving Independent Meaning to “Harassment,” 52 VAND. L. REV. 1831, 1850–52 (1999) (discussing First Circuit cases).
spawning and feeding of the fish and reduce its chances of survival from five percent to three percent. If the focus is on individual fish, plaintiff has a causation problem. Plaintiff will not be able to prove that the project will harm any particular fish. Think about finding a dead fish after the new diversion. If there is no rusty hook, no cuts from turbines or the like, plaintiff would not be able to prove that the fish died because of the human-induced problems in the river. Given that fifty percent of the fish did not reach maturity in a state of nature, plaintiff cannot show on a more probable than not basis that the fish was killed by the collective impact of the various habitat modifications. The proof is even more difficult if the question is the new diversion. With respect to any particular fish, the chances of the diversion harming that fish are only two percent.

If the focus is on population, however, the entire analysis changes. A biologist may not know which fish will die but she can have a relatively high degree of confidence (enough to satisfy the more probable than not standard) that two out of every 100 fish will die if the new diversion occurs. Although the plaintiff can only prove harm at the population level, the fact remains that two fish suffer individual, if untraceable, deaths. How this case comes out after Sweet Home is a difficult question. With respect to any particular fish, the diversion merely impairs its chance at survival. The diversion does not make its survival impossible. This suggests that Justice O'Connor may not see harm in such a case. On the other hand, the fact that two individual, if unidentified, fish will die may satisfy the majority's requirement of "injury to particular animals,"\(^7\) provided that the diversion is regarded as a significant impairment.

In the river hypothetical where the new diversion affects the entire habitat of the endangered fish population, it is relatively easy to conclude that the diversion will lead to two additional deaths. But it will not always be so easy to use population data to prove individual harm. Take one more example. Assume that in a forest untrammeled by man, or indeed in a forest where habitat modification has occurred but was regarded as reasonable when completed, there is a ten percent likelihood that any spotted owl will be killed by a predator. Then assume that a particular timber cut would increase to fifteen percent the likelihood that a pair of spotted owls will be subject to predation because the pair will then spend more time flying without canopy protection. If one of these owls ends up killed by a hawk, it cannot be proved, on a more probable than not basis, that the timber cut caused the take. More probably than not, the take would have happened even without the timber harvest.\(^8\)

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\(^8\) This hypothetical gets at a part of the Sweet Home plaintiffs' objection to FWS's use of owl circles. Recall that under FWS's guidelines, take was said to occur when a proposed timber cut reduced below 40% the percentage of remaining forest cover within a certain radius of an owl nesting site. See Gidari, supra note 22 and accompanying text. Cutting the first 60% of the timber was unobjectionable but cutting any portion of the remaining 40%, said FWS, would be a take. Plainly, cutting the first 60% increased the risks to the owl, but not beyond what FWS considered a biological tipping point. To the extent FWS must prove individual injury, it is hard to show causation. Upon finding a dead owl, in a simplistic sense, it is more probable than not
Even with a population focus, causation is difficult. Unlike the river hypothetical where we assumed the particular diversion impacted the entire population, in the owl case, the particular timber cut potentially impacts only two owls. If a population biologist could review 100 timber harvests associated with fifteen acts of predation, theoretically she could be confident that five of those deaths were the result of timber harvests. What she could not do would be associate any one bird kill with any particular timber harvest. To enjoin the timber harvest would be to make the single property owner responsible for a population-level risk. This sort of case should not satisfy either the *Sweet Home* majority or Justice O’Connor. There is no way to tell whether any particular owl will be harmed by the habitat modification at issue. Indeed, this hypothetical illustrates one reason why Justice O’Connor may have focused on prevention rather than hindrance. If prevention is the standard, one can be confident that the owl will suffer a real injury (i.e. not being able to feed, breed, shelter, etc.). On the other hand, if increased risk or hindrance is the standard, a particular bird will not necessarily suffer harm. It may be more risky to fly through the clear cut, but if it does not get eaten, the bird has not suffered any real injury.

One could perhaps argue that the bird which is subject to greater predation risk, or the bird that must look harder for a place to build a nest, suffers some sort of injury. In fact, tort law has begun to struggle with this very issue: Whether increased risk of harm is itself actionable. But if tort

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79 Traditionally, increased risks of harm were not enough to establish causation. See H.L.A. HART & TONY HONORE, CAUSATION IN THE LAW lxvii (2d ed. 1985) (describing courts’ approach to causation). This is still generally the approach of courts. See, e.g., Sterling v. Velsicol Chem. Corp., 855 F.2d 1188, 1205 (6th Cir. 1988) (rejecting claim based on increased risk of cancer); Ayers v. Township of Jackson, 525 A.2d 287 (N.J. 1987) (same). A few courts, however, have recognized claims for increased risks of harm. Professor Klein describes how

courts have recognized three categories of pre-manifestation (or “futures”) claims during the past fifteen years. First, a small number of courts permit plaintiffs to maintain direct actions for enhanced risk of disease, assigning a value to the increased risk without any assurance that a plaintiff’s disease will manifest. Second, several jurisdictions recognize claims for medical monitoring, in which plaintiffs seek recovery for the cost of surveillance to detect the onset of disease. Third, a number of courts allow actions for fear of disease, in which plaintiffs seek compensation for emotional distress.

Andrew R. Klein, *Fear of Disease and the Puzzle of Future Cases in Tort*, 35 U.C. DAVIS L. REV. 965, 967–69 (2002) (footnotes and citations omitted). See also Christopher H. Schroeder, *Corrective Justice and Liability for Increasing Risks*, 37 UCLA L. REV. 439, 469–73 (1990) (arguing for liability based on increased risk of harm); Lisa Heinzerling & Cameron Powers Hoffman, *Tortious Toxic*, 26 WM. & MARY ENVT. L. & POL’Y REV. 67 (2001) (same). A related issue arises in what are known as “loss of chance” cases where a defendant’s negligence (typically a misdiagnosis) decreases plaintiff’s chance of recovery from a pre-existing illness and then death or injury actually occurs. In such cases it can be difficult to prove on the traditional more probable than not basis that defendant’s negligence was the cause in fact of the death because in many cases the greater probability is that the death or injury was the result of the underlying illness. A federal district court in *Crosby v. United States*, 48 F. Supp. 2d 924 (D. Alaska 1999), reported that of the states that had addressed the issue, twenty-two states
law is only just struggling with this issue, it would be surprising if Congress intended harm to animals to include these sorts of harms. The only real way to get at the timber harvester is to employ the population approach to harm that Sweet Home rejected.

A useful lesson from these two hypotheticals is that population-level harms are not all alike. In the river example, the biologist could use population analysis to testify that the specific diversion would take two unidentified but individual fish; but in the owl example, the biologist could not tell from the population numbers whether the specific harvest would take any owls. Thus, even if one is inclined to a broad reading of Sweet Home's requirement of injury to particular animals, that reading is more tenable in cases where the habitat modification in question alters the habitat of the entire population and not just the habitat of a particular animal.80

Finally, it is important to recognize that both of these hypotheticals involve situations where the risk created by the habitat modification is less than or equal to the background risk. This, of course, will not always be the biological case. If the habitat modification more than doubles the background risk, and if a court employs a population-based approach, another causation problem arises. Assume, for example, that the timber harvest would increase the risk of predation to the owl to 50% from the background 10%. In that case, if a dead owl shows up in the harvested area, on a pure probability basis, it is more likely than not (80% chance) that the owl was killed because of the habitat modification. If the timber company is held liable for the take, it may be held responsible for a take it did not cause (a 20% chance). Violators of section 9's take prohibition may be assessed a civil penalty of $25,000 for each violation.81 Thus, if five owls are taken in the area of the timber cut, and each time liability is assigned based purely on probability, the timber company could pay $25,000 in civil fines for takes it did not cause. On the other hand, if the numbers were reversed, the timber company would avoid liability for the four of five takes it did cause.

80 Another type of population-level harm is habitat modification that merely retards recovery of a protected species without necessarily increasing the risk of current population decline. Although no court before or after Sweet Home has specifically found retarding recovery to be harm, several have raised the possibility. See, e.g., Palila IV, 852 F.2d 1106, 1110 (9th Cir. 1988) ("[W]e do not reach the issue of whether harm includes habitat degradation that merely retards recovery."); Nat'l Wildlife Fed'n v. Burlington N. R.R., 23 F.3d 1508, 1512-13 (9th Cir. 1994) (quoting Palila IV); Ariz. Cattle Growers' Ass'n v. United States Fish and Wildlife, 273 F.3d 1229, 1238 (9th Cir. 2001) (quoting Burlington N. R.R.); Bensman v. United States Forest Serv., 984 F. Supp. 1242, 1248 (W.D. Mo. 1997) (quoting Palila IV). Such statements are hard to reconcile with Sweet Home and the prohibitory focus of section 9. Recovery of a species is, by definition, a population-level concern. It does not actually kill or injure a particular animal.

This is precisely the problem faced in mass exposure tort cases. How can traditional tort causation principles apply to cases where a food or drug increases the risk of harm over the background amount? To the extent a court employs a probability approach, it ends up denying recovery to some deserving plaintiffs or imposing excess liability on defendants. Courts and commentators have been wrestling with this question in tort cases. There has been no effort to consider the issue in ESA cases.

4. The Species Occupation Requirement

Although there is continuing debate about the extent of impairment necessary to prove individual injury, the Ninth Circuit has recently led the way on establishing a minimum evidentiary floor for proof of causation and individual injury. In Defenders of Wildlife v. Bernal and Arizona Cattle Growers' Ass'n v. United States Fish and Wildlife (Cattle Growers'), the panels held that to prove a take the government must prove that the protected species occupies the habitat which will be modified. This standard makes sense. The first step in assuring that the wildlife agencies prove individual harm is to assure that individual animals are actually in the habitat to be modified. In Cattle Growers the court emphasized that it was not enough to speculate about the "potential" of the endangered razorback to move upstream into the area to be grazed or about the "potential" downstream effects of grazing. Nor was the court persuaded by general evidence "that trailing livestock along and across creeks could potentially step on fish, larvae, and eggs, remove vegetation that could influence water temperature, or trample stream banks that could lead to changes in stream morphology." The Service was obligated to show what "would occur" in a specific location.

Until its decision in Cattle Growers', the Ninth Circuit was probably the jurisdiction quickest to recognize take from habitat modification. Whether Cattle Growers' represents a real break from past practice will depend on whether the Ninth Circuit rigorously adheres to the case's species occupation requirement. Right now, however, it appears that to prove a take in a case for injunctive relief in the Ninth Circuit, FWS and NMFS must show that the protected species is physically present in the place where the contested activity is to occur. If it is not, the connection will be too tenuous.
or indirect to show causation. If the species is present, a take finding will depend upon whether the court understands "significantly impairing essential behavioral patterns" to include only habitat modification that prevents or makes impossible breeding, feeding, spawning, or sheltering (like Justice O'Connor and the West Coast Forest Resources court) or to include modification that merely hinders such behavioral patterns (like the court in Marbled Murrelet).

Viewed as a whole, the post-Sweet Home case law appears to be taking a narrower view of when habitat modification will be considered the proximate cause of harm to a protected species. Although it sounded a bit optimistic at the time, the Sweet Home plaintiffs' claim that the case was not a total loss for them despite the upholding of the harm regulation is bearing some fruit. It appears as though plaintiffs (whether FWS, NMFS, or a citizen) who seek to prove that habitat modification is or will be the proximate cause of harm must prove: 1) that the protected species occupies the habitat that will be modified; and 2) that the habitat modification will: a) cause bodily death or injury to individual member(s) of the occupying species; or b) prevent or make impossible (or perhaps just significantly hinder, if subsequent cases have not supplanted Marbled Murrelet) member(s) of the occupying species ability to feed, spawn, breed, or shelter.

5. Proving Causation in Cases with Multiple Habitat Modifiers

An additional complexity presented by Sweet Home's proximate causation requirement is how to establish causation in cases where there are multiple habitat modifiers. This is no small issue. Most harmful habitat modification is a product of multiple actors. Perhaps the most interesting case on this issue is Pyramid Lake Paiute Tribe v. United States Department of Navy (Pyramid Lake). There, the Tribe argued that water diversions by the Navy harmed the endangered cui-ui fish (Chasmistes cujus) by reducing the water level in Pyramid Lake. The Ninth Circuit, however, denied the claim. It reasoned that because the Tribe failed "to distinguish the Navy from

89 See Quarles et al., supra note 29 (arguing that Sweet Home narrowed the range of cases in which habitat modification will be a take).

90 Although the agencies prefer having a corpus delicti, that will not guarantee proof of causation. There remains the danger of post hoc ergo propter hoc analysis. A good example of this fallacious logic is plaintiff's argument in Hawksbill Sea Turtle v. FEMA, 11 F. Supp. 2d 529 (D.V.I. 1998). There, plaintiffs asserted that a construction project was harming the endangered Virgin Islands tree boa. They presented evidence of habitat modification and evidence of harm: one dead and one injured tree boa were found near the construction project. Id. at 538. Plaintiffs, however, failed to present evidence linking the habitat modification (the construction project) to the harm (the dead and injured tree boas). Id. at 554.

91 To state the elements another way, to the extent the species is not present, harm is not sufficiently foreseeable; and to the extent there is no bodily injury, interference with behaviors like breeding, feeding, and sheltering will not be considered a proximate cause of harm unless the interference rises to the level of actually preventing (or significantly hindering) such activities.

92 898 F.2d 1410 (9th Cir. 1990).
other users of Truckee River water," one of whom was the Tribe itself, the Tribe had not proved that the Navy was the cause of the harm to the cui-ui.\footnote{Id. at 1420. The court indicated that "[t]he evidence does not establish that any one year's diversions of Project water has actually caused the cui-ui's spawning problems." Id.}

The reasoning of the Pyramid Lake court portended a significant burden on section 9 plaintiffs. Because most watercourses in the West have multiple diverters and are often over-appropriated, it would be very difficult to prove that one diverter was the but-for cause of the lack of instream flow. Shut the Navy's head-gate and there would still not be enough water. Or, from another perspective, shut the other diverters' head-gates and there would be plenty despite the Navy's diversion. Pyramid Lake, however, has not had much influence, probably because the court's understanding of causation departed from the approach applied in tort law. Assume, for example, \(X\) and \(Y\) both negligently start fires; the fires join and then burn \(Z\)'s property. Neither \(X\) nor \(Y\) is the but-for cause of the harm to \(Z\). \(X\) can legitimately claim that \(Z\)'s property would have burned even if \(X\) had not ever started his fire. And \(Y\) can make the same argument. But this lack of but-for causation did not deter courts from imposing liability on \(X\) and \(Y\). Instead, they simply asked whether the acts of \(X\) and \(Y\) were "a material element and a substantial factor" in bringing about the harm.\footnote{KEETON ET AL., supra note 31, at 267.} Asking whether the actions of \(X\) and \(Y\) were "substantial factors" is essentially a proximate cause question: Was the participation sufficient to warrant imposing liability?

Under basic principles of tort law, multiple defendants can also be held liable for separate acts of negligence which combine to cause a single injury even though none of the negligent acts by themselves would have been sufficient to cause the harm.\footnote{Id. at 267-68.} To illustrate, \(X\) parks his truck in the middle of the road and \(Y\), driving at night without lights, runs into \(X\)'s truck, injuring his passenger. \(X\) and \(Y\) are both liable for the harm to the passenger, even though the passenger would not have been hurt if either \(X\) or \(Y\) had not acted negligently.\footnote{See, e.g., Hill v. Edmonds, 270 N.Y.S.2d 1020 (1966) (case on which hypothetical is based).} \(X\) and \(Y\) are both but-for causes.

Had these two traditional common law approaches to causation been applied in Pyramid Lake, the result may have been different. Under the latter illustration, even though no diversion (including the Navy's) was alone enough to cause the lack of water, they were all but-for causes (e.g. if any one of them had stopped diverting there would have been enough for the cui-ui).\footnote{An application of this principle arose in United States v. Glenn-Colusa Irrigation District, 788 F. Supp. 1126 (E.D. Cal. 1992). There, the question was whether the irrigation district's pumping operations (which at times slurped up 33% of the Sacramento River) were taking the threatened Chinook winter-run salmon. The evidence indicated that large numbers of fingerling salmon were killed each year by entrainment on the fish screen installed in front of the District's intake pumps. \textit{Id.} at 1130. Those that made it through the fish screen were chewed up in the pumps. The District argued that its pumping was not the cause of the take. The real cause, said the District, was the fish screen, which had been installed by the California Department of Fish & Game to prevent the greater harm caused by the unprotected pumps. The}
even though the harm would still have occurred in the absence of the Navy's diversion, the Navy's diversion was a substantial factor in the overall lack of water in the Truckee River. In sum, under traditional principles of causation, the fact that there may be multiple habitat modifiers does not generally present a difficult obstacle to proving causation.98

E. Causation and Prior Appropriation

If the existence of multiple habitat modifiers does not usually create a causation problem, it does raise a challenging causation question when the habitat modifiers are water diverters with different priority rights to the water. This difference is a function of the fact that a diversion has a priority component that is not present with other forms of habitat modification. For example, the nature of a logger's property rights in his forest generally do not depend on the time at which his neighbor, or predecessor, acquired his right. He cares little when his neighbor acquired his property or which of them can trace their title back to the earlier homestead patent. But when it comes to water rights, the nature of the neighbor's water right makes all the difference. First-in-time is first-in-right. A water right derives its value largely as a matter of relation. The earlier the priority date of a water right, the more valuable the water right.

The question of whether the priority component of a water right is relevant to proving causation can be divided into two parts. First, should a state law prior appropriation scheme matter to the application of federal law? And second, if state prior appropriation law matters, how does it impact the analysis of proximate cause? As to the first question, there is little reason to ignore state prior appropriation laws in assessing liability under the ESA. In fact, the ESA specifically declares it “to be the policy of Congress that Federal agencies shall cooperate with State and local agencies to resolve water resource issues in concert with conservation of endangered species.” Likewise, the Act obligates the Secretary in implementing the ESA to “cooperate to the maximum extent practicable with the States.”100

98 This is certainly true with respect to multiple habitat modifiers who act at the same time. However, where past habitat modification has increased the background probability of harm to a particular species, the difficulty of proving that new habitat modification more probably than not caused harm to an individual animal will increase. See supra Part II.D.3 (discussing this causation problem).


100 Id § 1535(a). Although a statement of policy and of “practicable” cooperation do not have real teeth, they do at least indicate that the agencies should disrupt the prior appropriation system as little as possible or, at very least, may consider prior appropriation in determining causation. Cf Nat’l Wildlife Fed’n v. Gorsuch, 693 F.2d 156, 178 (D.C. Cir. 1982) (construing Wallop Amendment, which is a similar provision in the Clean Water Act, as indicating “that Congress did not want to interfere any more than necessary with state water management”).
Thus, far from precluding consideration of prior appropriation law in determining causation, the ESA encourages it.

As to the question of whether seniority matters to the proximate cause analysis, the answer is that in states that apply the prior appropriation doctrine, a senior water right holder will not typically be the proximate cause of a lack of instream flow. This conclusion may initially seem counter-intuitive because the senior will be diverting water at the same time as junior appropriators. It appears to be a typical joint cause case. What this analysis ignores, however, is that the senior only acts jointly along the physical dimension; he does not act jointly along the priority dimension.

Even though the senior and junior divert their water at the same time, it is really akin to the following hypothetical. Suppose a forest is home to a spotted owl pair and that the ownership is divided between two private parties—A and B. Suppose A harvests all of his trees in year one. Because there is plenty of habitat left for the owl pair, A will not be prosecuted for take. Assume, however, that the next year B proposes to harvest his trees and that FWS seeks to enjoin B's logging. If FWS is able to prove that cutting the rest of the habitat is reasonably certain to cause actual death or injury to the owl pair, the injunction will likely issue. If B is a cause of injury to the owls, what about A? In light of the fact that the ESA has not been applied in cases like this—i.e. where previous habitat modification did not result in death or injury—the answer is seemingly that A is not considered the proximate or legal cause of the harm.

Imposing liability on B but not A is a feature of the ESA that has been criticized for creating a perverse incentive for property owners to modify habitat as quickly as possible. And there is some empirical evidence that has been the case. But the imposition of liability on B alone is certainly

101 The word "typically" here is an important one. In the hypothetical river situation described in the text, diversions are assumed to affect flow for the entire length of the river. That, of course, is not usually the case. For example, an endangered fish may live only in an upstream portion of the river. To shut down junior rights below the habitat would bring no benefits to the fish. This does not mean, however, that priority would be irrelevant to causation. It simply means that the priority analysis would occur within a smaller reach of the river. It is possible that a species at the stream's headwaters could be harmed by a headwaters diversion by the most senior rights holder. But that will not "typically" be the case. To broaden the point, the basic river hypothetical in the text could be made more complex on a number of levels. The harm is likely, for example, to be a result not just of diminished flow but increased point and nonpoint source pollution, hydropower projects, etc. But the basic point remains valid. To the extent some of the harm is caused by a lack of stream flow, the specific cause of that lack of stream flow is the junior-most diverter.

102 See generally John Charles Kunich, Preserving the Womb of the Unknown Species with Hotspots Legislation, 52 HASTINGS L.J. 1149, 1202-04 (2001) (discussing these "perverse incentives" and citing other articles making similar points).

103 See generally DEAN LUECK & JEFFREY MICHAEL, PREEMPTIVE HABITAT DESTRUCTION UNDER THE ENDANGERED SPECIES ACT (2000), http://papers.ssrn.com/sol3/delivery.cfm/000810470.pdf?abstractid=223871 (describing a study of timber owners in South Carolina who modified their harvesting practices to reduce the chance of their land becoming habitat for the red-cockaded woodpecker). Lueck and Michael hypothesized that because red-cockaded woodpeckers preferred old-growth trees for nesting, landowners may have an incentive to harvest their trees before they grew old enough to attract
not extraordinary. Tort law generally does not regard as proximate causes of harm those acts that were reasonable when completed, even if they are later but-for causes of harm. For example, when a state builds a highway and an accident is later caused by a drunk driver, we would not generally think of the highway as the proximate cause of the accident despite the fact that it is perfectly foreseeable that some motorists will use the road improperly. As a general matter, the law encourages productive behavior even where it lays the foundation for subsequent negligent behavior.

Certainly, a different approach is possible. If, for example, $B$ went ahead and cut his trees, one could argue that both $B$ and $A$ should be liable for take. If $A$ had completed his cut only weeks before $B$, we may feel more comfortable about treating the two as joint causes than if $A$ had completed his cut fifteen years prior. But that is the essence of a proximate cause determination and why it is often called "legal cause." To say that an act is not the proximate cause of harm is simply to decide for policy reasons not to extend causation that far. And thus far, it has been the policy of the courts and agencies not to extend takings liability to habitat modification that was not harmful when completed. A contrary rule would mire the agencies and courts in an exceedingly complex historical inquiry and likely discourage many productive uses of land.

To return to the broader point of the logging hypothetical, although they divert at the same time, the senior and junior diverters are little different than $A$ and $B$, respectively, and to the extent they are different, the senior diverter should be treated even more favorably than $A$. In the logging example, $A$ avoided liability because he cut first. Although perhaps not true in real-time, logically and legally the senior right is exercised before the junior right. There is no reason why the senior should not enjoy exactly the same protection as $A$. If anything, the senior actually deserves more protection. $A$ and $B$ held identical property rights, not relational. $A$ only avoided liability by fortuitously acting before $B$. The senior's rights, by contrast, are expressly defined in relation to the junior's rights. Whereas $B$ might legitimately complain about the inequity of imposing the full protection obligation on him just because $A$ cut first, a similar complaint from the junior diverter would be much less persuasive because the very nature of his water right was defined by its subservient priority status. Thus, in prior appropriation states where wildlife harm is caused by lack of stream flow, as

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Id. at 6–7. To study the way in which the presence of red-cockaded woodpeckers influenced logging decisions, Lueck and Michael surveyed over 400 landowners and gathered data from over 1000 individual forest plots. Id. at 19–20. Their study showed statistically significant evidence that the closer woodpeckers were to a plot, the more likely it was both that the trees would be harvested and that the trees would be harvested at an earlier age. Id. at 30–35.

104 Of course, as discussed above in supra note 45 and accompanying text, one could follow Cardozo's Paisgraf admonition and consider the highway case in terms of duty rather than proximate cause. The state could be said not to have a duty to the injured motorist.

105 See supra notes 31–34 and accompanying text (discussing the policy component of proximate cause).
a matter of logic and fairness, the junior-most diverter(s) should be treated as the proximate cause of the harm.

Determining proximate causation with reference to priority would also promote a more efficient use of water. Junior appropriators have already considered the risk of water unavailability in their decision to appropriate and invested accordingly. Thus, to take away their rights may involve less interference with significant capital investment than might be the case with a senior appropriator with a seemingly secure water right. It would surely involve less interference with longstanding, firmly entrenched expectations of senior appropriators. Allocation by priority also would have the value of greater certainty and predictability. Rather than guessing at whom the wildlife agencies would target in a joint cause scenario, appropriators would be able to calibrate their regulatory risk with reference to their priority. This certainty, in turn, would also more likely create a climate for market solutions to watershed problems because the more clearly defined the right, the more likely markets are to develop.

The suggestion that considering priority as part of the causation analysis is more efficient and fairer to senior diverters does not perhaps sound very much like a causation analysis. Yet, as discussed above, at its core, proximate cause is not a scientific determination but a policy conclusion. Thus, fairness to a senior right holder does matter. That said, the priority issue can be stated just as easily in traditional causation language. The senior diverter can be viewed as completing his habitat modification before any harm occurs and thus as neither the but-for nor proximate cause of the harm later caused by a junior user. To use another formulation, the senior's diversion is too remote from the harm to be its proximate cause.

Even if one is not inclined to accept this proximate cause argument and prefers to view all diversions without reference to priority and thus as joint causes of harm, the fairness issue cannot be avoided. To the extent all diverters are joint causes of harm, there is still a question about how responsibility for that harm should be allocated among the diverters. Is it fair for a senior to bear the entire section 9 responsibility just because he is one of several joint causes? This separate allocation issue will be discussed in Part III, below.

F. Circumventing Causation Problems by Imposing Vicarious Liability

One final causation issue worthy of note, because of its potential to avoid many of the difficult proximate cause discussed above, is the budding

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107 See id. (making this point).
108 See Coase, supra note 7, at 8, 10, 19 (suggesting that when property rights are clearly defined, private actors will negotiate for the most efficient use of the property); see also COOTER & ULEN, supra note 7, at 89 (3d ed. 2000) ("Bargainers are more likely to cooperate when their rights are clear and less likely to agree when their rights are ambiguous.").
109 See supra notes 31–34 and accompanying text (discussing this issue).
case law imposing vicarious liability on state and local governments for species-harming activities of private parties. Under the ESA, persons, which include federal, state, and local governments, are prohibited not only from taking protected species but also may not “cause [a taking] to be committed.” Relying on these prohibitions, courts have imposed vicarious liability on federal agencies and on state and local governments. From his analysis of those cases, Professor Ruhl derived three theories of vicarious liability.

The first category of cases consists of those where the government is the owner or operator of the land on which the private activities cause a take. For example, in *Sierra Club v. Yeutter,* the court held the Forest Service responsible for private timber harvesting conducted pursuant to the agency’s timber management plan where the logging impaired the breeding, feeding, and sheltering practices of the endangered red-cockaded woodpecker. In a similar case, the town of Plymouth was held liable for issuing some 2000 annual permits to ORV users because the permit holders’ riding on the town beach harmed the endangered piping plover (*Charadrius melodus*). Professor Ruhl argues that these cases fall squarely within the ambit of the statutory language and he is probably correct. Where the government acts as a proprietor, there is no reason that it should be treated

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111 *Id.* § 1538(g).
112 The vicarious liability theory was first employed in a pre-*Sweet Home* case, *National Wildlife Federation v. Hodel,* 15 Envtl. L. Rep. (Envtl. L. Inst.) 20,891 (E.D. Cal. 1985), where the district court held that FWS violated section 9 by allowing hunters to use lead shot despite significant evidence of death and injury to threatened bald eagles as a result of lead poisoning. *Id.* at 20,893. The theory gained a further foothold in *Defenders of Wildlife v. EPA,* 882 F.2d 1294 (8th Cir. 1989) which involved a suit against EPA, alleging that its registration of strychnine, an active ingredient in many pesticides, was taking various protected species. The Eighth Circuit rejected EPA’s argument that it was the misuse of strychnine by private parties, and not its registration by EPA, that caused the harm and thus enjoined EPA from registering the strychnine within range of a list of endangered species. *Id.* at 1301.
114 *Id.* at 73.
115 926 F.2d 429 (5th Cir. 1991).
118 Ruhl, *supra* note 113, at 73.
any differently than a private property owner who cannot avoid section 9 by contracting out harmful habitat modification to another. In proximate cause parlance, the private activities are classic dependent intervening causes—they could not occur absent government permission because the activities are on government land. Typically, an intervening cause that depends on a prior act to trigger its operation will not be considered the sort of superseding cause that terminates a chain of causation.\footnote{See Keeton et al., supra note 31, at 301–02; RESTATEMENT (SECOND) OF TORTS § 440 (1965).}

A second category of vicarious liability cases consists of those where the state or local government issues permits or licenses with respect to an activity that causes a take.\footnote{Ruhl, supra note 113, at 73.} In \textit{Strahan v. Coxe (Strahan)},\footnote{127 F.3d 155 (1st Cir. 1997).} the First Circuit held that the Massachusetts Department of Fisheries' authorization of gillnet and lobster gear use by commercial fishing boats caused a take because endangered northern right whales (\textit{Balaena glacialis}) became entangled in the gillnets and lobster gear.\footnote{Id. at 163.} The state argued that the licenses were not the proximate cause of harm to the whales because the harm was indirect, in other words, that the fishermen were an intervening and superseding cause.\footnote{Id. at 164.} The court, however, rejected the argument, noting that section 9 encompassed indirectly caused harm.\footnote{Id. As the state saw it, the state’s licensure of fishermen did “not cause the taking any more than its licensure of automobiles and drivers solicits or causes federal crimes, even though the automobiles it licenses are surely used to violate federal drug laws.” \textit{Id.} at 163–64. The court rejected the analogy, observing that whereas it was possible for a person to use a car without violating federal law, it was not possible for commercial fishermen to engage in the licensed activity without risk of causing a take. \textit{Id.} at 164. The court’s distinguishing of the two situations makes sense as far as it goes, but still relies on the faulty premise discussed in the text, infra.}

As Professor Ruhl has explained, there are several persuasive reasons why imposing liability in cases like \textit{Strahan} is contrary to the statutory scheme of the ESA.\footnote{Id.} But \textit{Strahan} is dubious not just as a matter of congressional intent but as a matter of causation. The court’s causation reasoning depends upon a critical but unexplored premise—that the permit is what authorized gill-netting and lobstering \textit{in the first instance}. If one accepts that premise, the court’s reasoning seems correct: the state is the cause of the problem because it initiated the harm-causing activity. That the

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\item See Keeton et al., supra note 31, at 301–02; RESTATEMENT (SECOND) OF TORTS § 440 (1965).
\item Ruhl, supra note 113, at 73.
\item 127 F.3d 155 (1st Cir. 1997).
\item Id. at 163.
\item Id. As the state saw it, the state’s licensure of fishermen did “not cause the taking any more than its licensure of automobiles and drivers solicits or causes federal crimes, even though the automobiles it licenses are surely used to violate federal drug laws.” Id. at 163–64. The court rejected the analogy, observing that whereas it was possible for a person to use a car without violating federal law, it was not possible for commercial fishermen to engage in the licensed activity without risk of causing a take. Id. at 164. The court’s distinguishing of the two situations makes sense as far as it goes, but still relies on the faulty premise discussed in the text, infra.
\item Id.
\item Among other points, Professor Ruhl observes that Congress knew what to say if it had wanted to extend liability to states for permitting and licensing decisions because it expressly did so in section 7 with respect to federal agencies. 16 U.S.C. § 1536(a)(2) (2000) (requiring federal agencies to consult with NMFS or FWS to ensure “any action authorized, funded, or carried out” by such agencies will not jeopardize a protected species). See Ruhl, supra note 113, at 73–74. As Ruhl points out, if Congress had actually imposed an obligation on states to pass protective legislation, it would likely have run afoul of the Tenth Amendment. See id. at 76. See also Printz v. United States, 521 U.S. 898, 933 (1997) (holding that the “[f]ederal government may not compel the States to enact or administer a federal regulatory program”) (quoting New York v. United States, 505 U.S. 144, 188 (1992)).
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gillnetters and lobstermen serve as intervening causes presents a proximate cause question, but not a very difficult one. If the court's premise is wrong, however, its causation analysis falls apart. If in the original position gillnetters and lobstermen are free to fish without state permission, the state does not "cause" harm by imposing only some restrictions on that fishing.\textsuperscript{126}

Consider a related illustration. A farmer intends to disc her land in preparation for planting. Worried about dust from the discing, a city passes an ordinance requiring the farmer to obtain a discing permit. The only way she can get that permit is to show that the discing machine has a dust-catching device. Suppose upon obtaining the permit, the farmer disc the last remaining habitat of a particular field mouse. Does the permit "cause" the harmful habitat modification? The intuitive and common sense response is of course not. The harm to the field mouse arises independently of the permit. The permit is not a but-for cause of the harm to the mouse because the field was going to be discd anyway. Nor is the permit a substantial factor in causing the harm. If anything, the permit made it less likely that the land would be discd, not more. The fishing licenses in \textit{Strahan} are no different. The decision to prevent some harmful impacts is not the cause of other impacts not prevented, absent a state duty to regulate which is nowhere to be found in the ESA.\textsuperscript{127}

Professor Ruhl identifies a third theory of vicarious liability that he calls the "inadequate regulation theory."\textsuperscript{128} This theory is exemplified by the Eleventh Circuit's decision in \textit{Loggerhead Turtle v. County Council of Volusia (Volusia County)}.\textsuperscript{129} The case involved a suit against the County for taking protected turtles. Upon hatching, turtles "instinctively crawl toward the brightest light on the horizon."\textsuperscript{130} In nature, that light is the moon

\textsuperscript{126} Although the court's causation analysis is without discernible limits, it did otherwise limit the reach of vicarious liability. The permit or license must authorize conduct "in specifically the manner that is likely to result in a violation of federal law." \textit{See} \textit{Strahan v. Coxe}, 127 F.3d at 164. If it is possible for a person to carry out the permitted conduct without risk of violating the ESA, then the government is not responsible for the individual's activities. \textit{Id.} at 163-64. \textit{But see} \textit{Defenders of Wildlife v. EPA.}, 882 F.2d 1294 (8th Cir. 1989) (holding EPA liable for the illegal takes by individuals who misused the pesticides permitted). Other courts have articulated additional limitations. A governmental third party cannot be held liable for nondiscretionary permitting. \textit{See} \textit{Strahan v. Linnon}, 967 F. Supp. 581, 602 (D. Mass. 1997) (stating that "the Coast Guard's issuance of Certificates of Documentation is not discretionary and so does not trigger the ESA"). And when the claim is that the government is liable for private conduct because it failed to regulate adequately, the governmental entity must have primary authority to regulate the conduct at issue. \textit{See}, e.g., \textit{Loggerhead Turtle v. County Council of Volusia}, 148 F.3d 1231, 1249-50 (11th Cir. 1998) (finding standing to sue for a harmfully inadequate regulation where the government entity possessed "primary authority to regulate").

\textsuperscript{127} Recognizing that \textit{Strahan} is grounded in a nonexistent duty to regulate distinguishes it from the cases where the state or local government is acting in a proprietary capacity. Where the state owns the timber or the beach, it has the same obligation as any property owner not to modify the property in a way that causes death or injury to a protected species. In \textit{Strahan}, the state does not "own" the ocean in a proprietary sense. It has the authority, but not the obligation, to regulate.

\textsuperscript{128} Ruhl, \textit{supra} note 113, at 75.
\textsuperscript{129} 148 F.3d 1231 (11th Cir. 1998).
\textsuperscript{130} \textit{Id.} at 1235.
reflecting off the water, but "on a developed beach, the brightest light can be an artificial inland source." Turtles on some of the County's beaches were becoming disoriented by artificial beach-front lighting and crawling the wrong way to their death. In the process of addressing plaintiffs' standing to sue, the Eleventh Circuit found that because the County possessed "primary authority to regulate artificial beachfront lighting," it could be liable for "harmfully inadequate regulation of artificial beachfront lighting." 

Although Professor Ruhl places Volusia County in a separate, failure-to-regulate category, it is really no different than Strahan. As discussed, Strahan is grounded in failure-to-regulate reasoning. It is only if the state has a duty to regulate the taking of right whales that its failure to do so can be considered the cause of harm to the whales. If the state has no duty to regulate, it does not cause a take when it sets up a permitting system that restricts some but not all activities related to a protected species. Volusia County simply makes more explicit what is implicit in Strahan—namely the idea that state and local governments have a duty to regulate to prevent harm to protected species. What is odd is that such a duty nowhere appears in the ESA and is instead derived from the "cause to be committed" language of section 9(g). But it is certainly not in keeping with the ordinary requirements of proximate cause—to use the language of footnote 13 in Sweet Home—to find that the omission of an act that an actor is under no obligation to perform is the proximate cause of any harm "caused" by that omission. That the omission somehow "causes" the harm is of little moment, unless one subscribes to something like a Mysterious Stranger theory of causation under which everyone can be liable for everything because we are all joint causes.

To describe the Eleventh Circuit's approach to causation in such pejorative terms may be a bit overly critical because the court at least limited its causation analysis to the constitutional standing inquiry of whether the injury was fairly traceable to the defendant. The panel left "it to the district court to decide the standard for causation for purposes of liability." And, as it turned out, the district court on remand performed a more sensible causation inquiry. Although it seemed to place some emphasis on an interim ordinance that the County had adopted prohibiting harmful lighting, in the end the district court held that the County could not "be made to assume liability for the act of its private citizens merely because it has chosen to adopt regulations to ameliorate sea turtle takings." The

131 Id.
132 Id. at 1249.
133 Ruhl, supra note 113, at 75.
136 Volusia County, 148 F.3d at 1252 n.24.
137 Loggerhead Turtle v. County Council of Volusia County, 92 F. Supp. 2d 1296, 1307-08 (M.D. Fla. 2000). The court was not clear about whether it would have reached a different result if the County had adopted no lighting ordinance at all.
138 Id. at 1308.
reasoning seems plainly correct. It is only unfortunate that it took a trip up to the Eleventh Circuit and back to achieve such a straightforward proximate cause resolution.

The approach in *Strahan* and *Volusia County* has interesting implications for the water context. Applying a vicarious liability theory might allow a plaintiff to circumvent the difficulties of proving that any one diversion causes harm (the joint causation problem) or of proving causation by a senior right holder (the priority problem). Instead of targeting an individual diverter, the plaintiff could target the state, arguing that its permit scheme is causing the decrease in water and therefore causing harm to a protected watercourse species. It is difficult to distinguish appropriation permits from the fishing licenses in *Strahan*. In both cases, the permit authorizes precisely the activity—gillnetting, lobstering, or diverting water—that "causes" the harm. Indeed, if one accepts the misguided notion of the public trust doctrine that the state maintains a continuing ownership interest in (as opposed to regulatory authority over) its waters permits to appropriate water may be more like the permits to ride ORVs on the town beach in *Town of Plymouth* or the permit to cut trees in the national forest in *Yeutter*.

That said, for the same reason that the vicarious liability rationale fails the tests of congressional intent and causation in *Strahan* and *Volusia County*, it fails with respect to western prior appropriation schemes. It defies credulity to suggest that Congress intended by section 9 to enlist, contrary to the Tenth Amendment, western states as the primary enforcers of the ESA in watercourse situations. That common sense conclusion may be what has prevented applications of the vicarious liability theory to western water permitting systems.

The closest attempt to applying vicarious liability to water withdrawals is the litigation over the Edwards Aquifer. The Aquifer is the exclusive water source for the city of San Antonio and a variety of diverters and irrigation districts. Unfortunately, excessive pumping of the Aquifer harmed protected species dwelling in springs dried-up because of the pumping. The case presented the classic causation conundrum—which pumper was causing the harm and who should bear responsibility to ensure sufficient flows to the

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130 As discussed above, to the extent an activity may be carried out without risk of a take, issuance of a permit cannot be said to cause harm. See supra note 126. An example is a driver's license.

140 See infra note 229 (summarizing the public trust doctrine).

141 See supra notes 115-17 and accompanying text (discussing these two cases).

142 See supra note 125 (discussing the Tenth Amendment problems with compelling a state to administer a federal program). Another difficulty with this approach is that it would be contrary to the policy expressed in section 2 of the ESA that "Federal agencies shall cooperate with State and local agencies to resolve water resource issues in concert with conservation of endangered species." 16 U.S.C. § 1531(c)(2) (2000). But see United States v. Glen-Colusa Irrigation Dist., 788 F. Supp. 1126, 1134 (E.D. Cal. 1992) ("This provision does not require . . . that state water rights should prevail over the restrictions set forth in the [ESA]. Such an interpretation would render the Act a nullity.").

143 Sierra Club v. San Antonio, 112 F.3d 789, 791 (5th Cir. 1997).
depleted springs? If FWS was reluctant to enforce the ESA, one can understand why. Nevertheless, in 1993, the Sierra Club sued FWS on the theory that FWS's failure to implement and enforce the ESA was taking protected species. Surprisingly, the district court agreed and established minimum spring flows pending a determination by FWS of what spring flows were necessary to avoid take. As the court saw it, those minimum spring flows would provide the baseline against which FWS could pursue the state if Texas refused to regulate withdrawals from the aquifer. Indeed, assuming FWS's role as its own, the court ordered defendant-intervenor the Texas Water Commission to prepare a plan “pursuant to which withdrawals from the Edwards Aquifer can and will be limited to whatever extent may be required to avoid unlawful takings of listed species.” Although the district court's convoluted and unpublished opinion was never affirmed on appeal,

144 Although it does not make causation any easier, the causation question in Texas was not intermingled with the issue of priority. Texas employs a rule of capture for groundwater. Any property owner may drill a well and pump to his heart's content. See Sipriano v. Great Spring Water of Am., Inc. 1 S.W.3d 75 (Tex. 1999). For a more comprehensive discussion, see Karen H. Norris, The Stagnation of Texas Ground Water Law: A Political v. Environmental Stalemate, 22 St. Mary's L.J. 493 (1990).

145 The legal hook for the Sierra Club and the court was FWS's duty under section 4(b) of the ESA to develop a recovery plan. See Sierra Club v. Lujan, No. MO-91-CA-069, 1993 WL 151353 (W.D. Tex. Feb. 1, 1993); see also 16 U.S.C. § 1533(f) (2000) (“The Secretary shall develop and implement plans . . . for the conservation and survival of endangered and threatened species . . .”).

146 Lujan, 1993 WL 151353, at *33.

147 Id. at *34.

148 Id. The injunction against the Texas Water Commission (TWC) is slightly less extraordinary than it may at first appear because the TWC had “asked to be assigned this task, [and had] already performed it.” See Sierra Club v. Babbitt, 995 F.2d 571, 574 (5th Cir. 1993) (dismissing appeal of Judge Bunton's order for lack of jurisdiction). Texas and San Antonio, however, could not have failed to hear Judge Bunton's message that he was prepared to order relief against them for violation of section 9. See Lujan, 1993 WL 151353 at *35-36 (ordering that plaintiffs could return to court if Texas did not implement “a regulatory system pursuant to which withdrawals from the Edwards Aquifer can and will be limited to whatever extent may be required to avoid unlawful takings of listed species”).

149 The course of the Edwards Aquifer litigation following Judge Bunton's initial ruling is complex and beyond the scope of this article. It is thoroughly reviewed in Todd H. Votteler, The Little Fish that Roared: The Endangered Species Act, State Groundwater Law, and Private Property Rights Collide over the Texas Edwards Aquifer, 28 Envtl. L. 845 (1998). Following Judge Bunton's ruling, Texas created the Edwards Aquifer Authority (EAA) which was then the subject of a variety of constitutional and Voting Rights Act challenges. Id. As wet years alternated with drought, several additional lawsuits were filed under the ESA. In 1996, the Sierra Club sued San Antonio and numerous other governmental and private entities, seeking certification of a defendant class and arguing that their diversions constituted unlawful takes. See Sierra Club v. City of San Antonio, 112 F.3d 789, 792 (5th Cir. 1997). When the Edwards Aquifer Authority (EAA) refused to declare an emergency, Judge Bunton appointed a special master and ordered the adoption of an emergency withdrawal reduction plan. Id. That order was then stayed by the Fifth Circuit on Burford abstention grounds. Id. at 798. Then, during a 1998 drought period, FWS threatened to file civil lawsuits or bring criminal charges against pumpers of the aquifer. Votteler, supra, at 872 (citing Jerry Needham, Suits Ready if Drought Kills Wildlife, SAN ANTONIO EXPRESS-NEWS, June 25, 1998, at 1A). In response, “EAA implemented its plan, the Critical Period Management Plan, which restricted certain uses of water. . . . Although flow at Comal Springs fell below the take level, USFWS did not file suit or
its order is a glimpse of what the vicarious liability theory could look like in the western water context. The primary distinction is that after Strahan, the state water authority, rather than FWS, would have been the primary defendant.150

Although the vicarious liability theory lies dormant with respect to the water permit systems of western states, it may become a tempting circumvention of the various difficulties associated with proving causation of harm by an individual diverter.

III. ALLOCATING RESPONSIBILITY FOR HARM AMONG MULTIPLE HABITAT MODIFIERS

As discussed in Part II, the presence of multiple habitat modifiers—joint causes in tort terminology—raises interesting questions with respect to proving proximate causation of harm to individual animals. In many instances, those questions will be easily resolved in favor of finding causation.151 In other instances, however, particularly where the joint causes of species harm are water diverters with different priority rights, proving causation will be more difficult.152 In either instance, where the agency or citizen plaintiff is able to prove proximate causation, another important question will arise, namely how responsibility for the harm should be apportioned among the multiple habitat modifiers. Should they be jointly and severally responsible to remedy the species harm? If so, should there be some right of contribution between them? Alternatively, should responsibility be apportioned between the various habitat modifiers, either ratably or in proportion to their contribution to the harm? In tort law, the focus of this query is on a division of responsibility for damages; but in the endangered species context, the remedial options are different. The issue is whether there would be allocation of any civil penalty or, much more often,

150 Even if the Sierra Club had a Strahan-like theory in mind, the decision to get at Texas through FWS may have been necessitated by the fact that Texas employed a rule of capture with respect to groundwater. The right to pump groundwater did not arise as a result of a permit but as one of the sticks in the property owner's bundle. See supra note 144.

151 See supra Part II.D.5 (discussing two basic tort principles: first, that even where two acts independently would not cause harm, when those acts combine to cause harm, both acts are considered but-for causes; and second, that where two acts combine to cause a harm that could have been caused by either act alone, both will be considered causes as long as each act was a substantial factor in causing the harm).

152 See supra Part II.E (discussing why causation of instream flow harms should be determined with reference to priority). See also supra note 78 and accompanying text (where past habitat modification has increased the background probability of harm to a particular species, the difficulty of proving that new habitat modification more probably than not caused harm to an individual animal will increase).
allocation of responsibility for compliance with the terms of an injunction preventing some habitat modification. Both issues are addressed below.

A. Civil Penalties Under Section 11

Under section 11 of the ESA, the government may impose a civil penalty of "not more than $25,000" for any take of a protected species where that take is done "knowingly." If the take is not "knowing," the penalty is $500. The courts have interpreted "knowingly" to mean only that the defendant knowingly performed the harmful activity, not that the defendant understood the action would have any effect on an endangered or threatened species. Although this civil penalty provision potentially applies to takes caused by habitat modification, the government has been reluctant to impose penalties for harm caused by otherwise lawful land-use activities. For that reason, and because a $25,000 penalty is not extraordinarily large, allocation of civil penalties has not been a particularly troublesome issue for diverters or land-owners. Should the wildlife agencies become more aggressive in pursuing civil penalties for habitat modification, allocation may become more important, particularly because a separate $25,000 penalty can be assessed for each separate violation. If forty fish turn up dead, a $25,000 penalty could be assessed for each fish ($1 million total).

The key question will be whether the joint habitat modifiers should be jointly and severally liable for the whole penalty or only for some proportionate share. Recall that section 11 provides that "[a]ny person who knowingly violates [section 9] may be assessed a civil penalty by the

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154 Id. Section 11(b)(1) of the ESA allows the government to impose a maximum criminal penalty of $50,000 and/or one year in jail for "knowing" violations of the ESA. Id. § 1540(b)(1).
156 See Alan M. Glen & Craig M. Douglas, Taking Species: Difficult Questions of Proximity and Degree, 16 NAT. RESOURCES & ENV’T 65, 68 (2001) (stating that "[t]he government rarely attempts to impose severe civil penalties or press criminal charges in connection with land-use activities that allegedly cause a prohibited taking").
157 16 U.S.C. § 1540(a)(1) (2000) (indicating that a civil penalty may be assessed "for each violation" and that "[e]ach violation shall be a separate offense").
158 A particularly aggressive regulator might read the statute as allowing the Secretary to allege forty violations on the part of each of, for example, ten diverters who contributed to the lack of instream flow, in which case the total penalty could climb to $10 million. It is hard to imagine Congress intended this result.
Secretary of not more than $25,000.159 As the language makes clear, the amount of any penalty is discretionary. The $25,000 figure is a ceiling on the amount that the Secretary "may" assess. The Secretary is free to impose a lesser penalty. Moreover, section 11 provides that "[a]ny such civil penalty may be remitted or mitigated by the Secretary."160 Thus, in cases where joint actors cause a single or multiple takes, the Secretary is free to apportion liability according to the relative contribution or responsibility of the actors.

Because the civil penalty provision has been used so sparingly, neither FWS nor NMFS has yet wrestled with the issue.161 Thus, the way is open for both agencies to adopt an apportionment rule, either by rulemaking or as a matter of prosecutorial discretion. To think cogently about this apportionment question, the agencies will need to consider the trend in tort law on the apportionment of damages. It is reviewed below. As it turns out, the trend has relevance not just to the rather speculative inquiry about how civil penalties might be apportioned if the government became more aggressive in prosecuting habitat modifiers but also to the more pressing issue of responsibility for injunctive relief, an issue which will also be discussed further below.

B. Apportionment of Damages in Tort Cases

To understand the approach to apportionment in tort law to cases of joint causation, it is first useful to understand what is meant by the phrase "joint causation." Originally, the term "joint tort" or "joint causation" referred to cases where the various defendants acted in concert and by design to commit the tort together.162 Because all acted with a common purpose in a joint enterprise, each was jointly and severally liable for the entire damage.163 As a procedural matter, all of the tortfeasors could be joined in a single action. Early on, however, they could not seek contribution from each other, based on the notion that where they had acted in concert, and thus committed a deliberate wrong, no tortfeasor should be able to seek an offset.164

This sort of joint tort or joint causation, which depended upon the defendants acting in concert, should be distinguished from those situations, much more analogous to the ESA context, where persons engage in

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160 Id.
161 NOAA has asserted the general regulatory authority to "assess a civil penalty against two or more respondents jointly and severally. Each respondent is liable for the entire penalty, but no more than the amount finally assessed may be collected from the respondents." See 15 C.F.R. § 904.107 (2002). Although this should apply to ESA enforcement actions, it is not apparent that NOAA Fisheries (NMFS) has considered the issue in the ESA context.
163 Id. at 323.
164 Id. at 323, 336–37. Later, in England, the rule against contribution was limited to cases where the plaintiff had been a willful and conscious wrongdoer and was not applied in cases of negligence. Id. at 337.
independent acts which combine to cause a single injury to the plaintiff. In early American cases, joinder was not permitted in such cases where the acts were independent. This meant that each defendant had to be sued separately and that each defendant could be severally responsible for the entire loss. Although plaintiff was entitled to only one satisfaction, if plaintiff did not like an initial judgment, he could speculate on the possibility that a second judgment against a second defendant would result in a more generous verdict. Whereas each defendant was liable for the entire loss, each was not jointly liable for the same sum; each defendant's liability was judged separately (a very rough form of comparative fault). Typically, whatever the judgment against him, courts allowed a defendant to seek contribution from the other independent tortfeasors, except in cases of willful misconduct.

The practice of allowing contribution actions began to change with the adoption of the New York Field Code of Procedure in 1848 and similar efforts in other states, which emphasized resolving all questions connected with a particular occurrence in a single law suit. Under the new procedural codes, joinder became the norm for independent actors who had contributed to a single tort. But once joinder was allowed, just as it had always been in cases of concerted action, courts reached the odd conclusion that the "no contribution" rule of concerted action cases should also apply in cases where independent acts had produced a single harm. Thus, instead of the prior approach of assessing liability against each independent tortfeasor in separate judgments and then allowing contribution, liability was assessed jointly for the same sum and then contribution was denied. This dubious practice continued into the 1970s in all but nine American jurisdictions.

The practice of holding independent tortfeasors jointly and severally liable and then refusing to allow contribution claims was subjected to heavy criticism throughout the twentieth century. The criticism began to bear

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165 Id. at 323.
166 See id. at 325; JOHN FLEMING, THE LAW OF TORTS 257-58 (8th ed. 1992); RESTATEMENT (THIRD) OF TORTS: APPORTIONMENT OF LIABILITY § 11, cmt. a, reporters' note at 109-10 (2000) ("Before the advent of comparative responsibility, 'several liability' was employed to describe a defendant who was responsible for all of the plaintiff's damages but who could not be joined in a suit with any other defendant who may also have been responsible.").
167 KEETON ET AL., supra note 31, at 328-29.
168 Id. at 330-32.
169 Id. at 329-31.
170 Id. at 337.
171 See id. at 325-28.
172 Id. at 337.
173 Id.
174 Id. at 337-38. The criticisms were summed up this way:

There is an obvious lack of sense and justice in a rule which permits the entire burden of a loss, for which two defendants were equally, unintentionally responsible, to be shouldered onto one alone, according to the accident of a successful levy of execution, the existence of liability insurance, the plaintiff's whim or spite, or the plaintiff's collusion with the other wrongdoer, while the latter goes scot free.
fruit in the 1970s when courts and legislatures began to make major changes to the law relating to contribution and apportionment of damages between joint tortfeasors. Almost all states now allow contribution claims among independent joint tortfeasors.\textsuperscript{175}

At the same time they were addressing contribution issues, states were wrestling with contributory negligence and joint and several liability more generally. Recall that at common law, if a plaintiff was contributorily negligent, even in the least degree, plaintiff was barred from recovery.\textsuperscript{176} Commentators, courts, and legislators became increasingly disenchanted with a rule that seemed to deny plaintiff recovery in so many deserving cases.\textsuperscript{177} Thus, throughout the 1900s, courts and legislatures began to modify the rule of contributory negligence, adopting a number of approaches—most often labeled as "comparative negligence"\textsuperscript{178}—that allowed plaintiffs to recover compensation for the portion of their injuries not attributable to their own negligence.\textsuperscript{179} Although comparative negligence took several forms, the movement toward proportional assignment of responsibility was unmistakable and today only four states and the District of Columbia continue to use the rule of contributory negligence.\textsuperscript{180}

As states moved toward a system of proportional recovery, questions were raised about the wisdom of retaining joint and several liability. If plaintiff's recovery could be proportionally based on plaintiff's comparative responsibility for an accident, why couldn't multiple defendants'
responsibility likewise be determined proportionally? For some, this was a reason to push for allowing contribution actions against joint tortfeasors. The defendants would still be jointly and severally liable for the full judgment but through contribution actions they could apportion the judgment among themselves. For others, the switch to comparative fault was a reason to push for a system of proportionate several liability under which not only plaintiff but all defendants would be obligated only for that portion of the injury for which they were responsible. In the former case, of course, the risk of insolvency of any particular defendant fell upon the solvent defendants, whereas in the latter case, it fell upon the plaintiff who could only recover from each defendant her specific share.

Unsurprisingly, there was and remains a vigorous debate about the merits of joint and several liability versus proportionate several liability, with the plaintiffs bar advocating the former, the defense bar the latter, and commentators on both sides of the issue. The Restatement (Third) of Torts provides that damages should be apportioned as long as there is "a reasonable basis for dividing the damages." Where the extent of the various contributions to the harm are indivisible, the Restatement indicates that different states have taken different approaches and that the "clear trend over the past several decades has been a move away from pure joint and several liability." Nevertheless, much of joint and several liability remains. In looking at what the various states have done, some fifteen jurisdictions retain joint and several liability, and almost all of those provide for a right of contribution. Sixteen states have adopted proportionate several liability. The other states have adopted some mix of the two, employing a wide variety of approaches.

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182 RESTATEMENT (THIRD) OF TORTS: APPORTIONMENT OF LIABILITY § 26 cmt. f, at 323 (2000). This is a continuation of the approach of the Restatement (Second) of Torts which took the position that defendants should be liable only for a portion of the harm if there is a reasonable basis for apportionment or division according to the relative responsibility of each defendant. RESTATEMENT (SECOND) OF TORTS §§ 433A, 881. Illustration 5 describes two defendants who negligently discharge oil into a stream, making the water unusable by a lower riparian. The injury is treated as divisible because the respective contributions (of 70% and 30%) can be measured.

183 RESTATEMENT (THIRD) OF TORTS § 17 reporter's note cmt. a (2000).


185 Id. A few of these states retain joint and several liability for claims involving environmental pollution and hazardous waste. Id.

186 Id. at 23-25. Some states retain joint and several liability unless plaintiff was contributorily negligent. See id. at 23 (Georgia, Oklahoma, and Washington). Other states retain joint and several liability only for those defendants whose comparative responsibility is more
C. Applying Tort Law Apportionment Principles to Section 11's Civil Penalty Provision

The above review of the development of apportionment principles in tort law is obviously not a perfect fit for a civil penalty or injunctive relief under the ESA. If the amount of the civil penalty in cases where the harm is caused by a lack of instream flow were designed to compensate for the take by making nature and the public whole (the approach of tort law, as reflected in the Restatement), the civil penalty would be allocated under a rule of proportionate several liability because the water right or the amount of water withdrawn will typically provide a "reasonable basis" for dividing the penalty among the various diverters. By contrast, in situations of multi-actor habitat modification where the harm is not the result of a water deficit and sorting out precise contributions to the harm is more difficult (point and nonpoint source pollution of a watercourse, land development, timber harvest, etc.), the Restatement's direction is less clear, suggesting that either joint and several liability with contribution or proportionate several liability is viable. In no case, however, does the Restatement recommend the wildlife agencies' current approach of joint and several liability without a right of contribution between the joint habitat modifiers.

The analogy to tort law, however, is not entirely apt. In tort law a key question is whether the risk of a defendant's insolvency should be born by plaintiff (proportionate several liability) or the other defendants (joint and several liability with contribution). But because the civil penalty is designed to deter, and not as a damages measure to make nature and the public whole, the critical question is not whether the government is fully "compensated" but whether the defendants are deterred and fairly penalized according to their relative responsibility for the harm. To the extent that relative responsibility is the primary concern and compensating the plaintiff is relatively unimportant, the impetus of tort law seems to be in favor of allocating any penalty on a proportionate several basis.

The fact that tort law points toward a form of proportionate several responsibility for whatever civil penalty is assessed begs the question whether the agencies have the authority to adopt such an approach. As suggested above, section 11 allows for the Secretary to consider equitable than a certain percentage, ranging from 25% to 60%. Id. (Illinois, Montana, New Hampshire, New Jersey, Texas, and Wisconsin). Mississippi retains joint and several liability for up to 50% of the damages. Id. Other states retain joint and several liability for economic damages but not for noneconomic damages, or for some percentage of noneconomic damages. Id. at 24–25 (Hawaii, New York, California, Florida, Nebraska, Iowa, and Ohio). Still other states (Oregon and Missouri) retain joint and several liability but allocate any orphan shares—the percentage of the harm attributed to an insolvent tortfeasor—between the solvent defendants and the plaintiff. Id. at 22. For another overview of state legislation, see Wright, Allocating Liability Among Multiple Responsible Causes: A Principled Defense of Joint and Several Liability for Actual Harm and Risk Exposure, supra note 181, at 1164–68. Professor Wright wrote the Law Professors Brief relied on in notes 184–85.

187 The exception to this, as discussed below, may be those situations in which water rights are not clearly defined, as in the case of some on-going stream adjudications. In such cases, shifting the burden to the defendant to seek contribution may be more appealing.
factors, such as proportionate responsibility, in assessing the penalty. In the absence of congressional direction in other statutes, federal courts have developed a federal common law of apportionment. The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), for example, is silent about apportionment of liability. But federal courts have held that apportionment is available under CERCLA whenever the defendant is able to prove that there is a reasonable basis for apportioning liability. Courts have likewise implied a common law right of contribution under the Employee Retirement Income Security Act (ERISA) in an effort to equitably apportion wrongdoing. The Supreme Court has approved apportionment principles under federal labor laws. Thus, if the wildlife agencies choose to become more aggressive in imposing civil penalties for harmful habitat modification, the path is clear for the agencies to adopt an apportionment rule for assessing penalties, or at least informally apportion the penalty as a matter of prosecutorial discretion.

D. Injunctive Relief Under Section 11 and Habitat Conservation Planning

While the agencies have not made much use of the civil penalty provision for habitat modification, they, and private citizen plaintiffs, have been somewhat more aggressive about using section 11 of the ESA to seek injunctive relief against proposed habitat modification. Section 11 authorizes the Department of Justice, by way of enforcement actions, and private citizens, by way of citizen suits, to seek injunctions against any action, including habitat modification, that might violate the ESA. Unlike the

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188 See supra notes 159-60 and accompanying text (discussing section 11).
194 See Vaca v. Sipes, 386 U.S. 171, 197–98 (1967) (apportioning liability between employer and union “according to the damage caused by the fault of each”).
195 See supra note 156 and infra note 198 (discussing this reluctance).
sparsely employed civil penalty remedy, in the case of injunctive relief, courts and agencies have some track record on allocation. Their practice has been to follow the anachronistic approach of pre-1970 tort law and use what is in essence joint and several liability without a right of contribution. FWS and NMFS have exercised discretion in seeking to enjoin one, several, or all contributors to species harm. In the water context, agency discretion has led to concentration on water districts, Bureau of Reclamation projects, and other major diverters.197 It is simply easier to pursue one defendant because as long as that defendant has rights to a sufficient amount of water, a complete remedy is available. In the land context, the focus has also been on landowners with large blocks of habitat.

Although the agencies have employed this joint-and-several-liability-without-contribution approach to allocating the burden of providing habitat, it would be inaccurate to suggest that the agencies commonly seek injunctive relief under section 11. That is not the case. The reality is that much more often section 11 is used to drive habitat modifiers to the bargaining table.

Federal agencies have not been eager to seek civil penalties or even to impose injunctive relief for a number of reasons. One reason has been the focus of this article. Proving that habitat modification will be the proximate cause of harm, and therefore take, can be a daunting and uncertain task, particularly in the case of individual water diverters.198 A second reason is that application of the ESA and section 9 to private property owners has been subjected to so much criticism that politically it does not make sense for the agencies to be aggressive.199 Nevertheless, if uncertainty about proving proximate causation makes the agencies shy away from the courtroom, that same uncertainty makes habitat modifiers nervous about legal exposure. Businesses crave certainty. The only way to get that certainty under the ESA is to obtain an incidental take permit under section 10, which authorizes an otherwise prohibited taking “if such taking is

197 See supra note 3 and infra note 198 (discussing recent targets of ESA enforcement).

198 Concern about proving causation has produced some reluctance to prosecute diverters for take. Telephone Interview with Henry Maddox, Director of Upper Basin Colorado River Endangered Fish Recovery Program, Fish and Wildlife Service (June 23, 1999). Mr. Maddox stated that his office had decided not to pursue section 9 prosecutions for diversions that may have contributed to take by diminishing instream flows, in part because of the difficulties of proving causation. They prefer to rely on the consultation process of section 7. He noted that they more often use section 9 against diverters when FWS has “a body” and when the diversion works themselves are causing the death or injury. He did note, however, that at one time FWS had threatened the Provo River Water Users Association with a take prosecution because its diversions from the Bureau of Reclamation’s Deer Creek Reservoir were causing extremely low flows in a portion of the Provo River below the dam and harming the protected June sucker (Chasmistes lioros). Id. See also Telephone Interview with Reed Harris, Field Supervisor, Salt Lake City Field Office, Fish & Wildlife Service, Region 6 (June 23, 1999) (also indicating that FWS prefers using section 7 to section 9 and that FWS was not in the habit of prosecuting diverters for take absent finding a dead fish).

incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. To receive a permit, the project proponent must negotiate an acceptable Habitat Conservation Plan (HCP), which must consider alternatives and include steps to minimize and mitigate any impact on a listed species from the activity.

Negotiation always occurs in the shadow of the law. Thus, in large measure, the content of an HCP (essentially how much habitat the property owner will be required to give up to obtain the permit) depends upon the parties' understanding of section 9 and specifically whether the agency could prove causation and what sort of rules govern allocation of responsibility. Commentators, for example, have suggested that the uncertainty about proving causation has allowed the agencies to extract more concessions than otherwise would be allowed under *Sweet Home*. Likewise, the negotiation of multiparty HCPs reflects the result one would expect where the underlying law is one of joint and several liability with no right of contribution. As described by Professor Thompson:

In the absence of statutory guidelines, political dynamics have shaped choices among different burden distribution options. Property owners often have succeeded in shifting at least some of the burden onto general taxpayers.

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203 HCPs are most often negotiated between FWS or NMFS and a single actor, although some regional HCPs have been developed. See Thompson, supra note 199, at 316-17 (reviewing statistics on incidental take permits).
204 One commentator has remarked that FWS has tended to apply a broader definition of harm when negotiating incidental take permits, noting that in such situations:

FWS typically gauges the potential effects of a project based on a conservation biologist's view of harm that barely resembles the rule adopted by FWS in 1981 and sustained by *Sweet Home*. In the world of the FWS biologist, habitat modification alone still equals take. From the agency's standpoint, evaluating projects with a broad view of harm enables FWS to demand more mitigation from permit applicants than it would be able to justify under the narrow view of harm.

Glen & Douglas, supra note 156, at 89, 132. Logically, it might seem that the same uncertainty would cause the agencies to make unwanted concessions. One reason why this may not be true is that when the agencies negotiate an HCP and incidental take permit, they must comply not only with section 9 of the ESA but also with section 7. Under section 7, any action "authorized, funded, or carried out" by a federal agency—and this would include incidental take permits and accompanying HCPs—must not "jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of [a species's critical habitat]." 16 U.S.C. § 1536(a)(2) (2000). As discussed in Part V *infra*, section 7 raises separate causation issues and takes a broader approach to causation than section 9.
Case studies of regional HCP processes also suggest that larger property owners are able to shift at least some of the burden onto smaller, less organized landholders.\textsuperscript{205} If the agency has discretion to assign liability to any landowner or diverter, simple public choice theory suggests that the parties who are better organized or have more property at risk have a greater incentive to mobilize and encourage the agency to pass along responsibility to the less-organized or more diffusely impacted.\textsuperscript{206} Thus, even though the agencies have not been aggressive about using section 9 for injunctive relief, their approach to allocation matters because it has an impact on the HCP negotiation process.

\textbf{E. Applying Tort Law Apportionment Principles to Section 11’s Injunctive Relief Provision}

There is nothing that would prevent either the wildlife agencies, by way of rulemaking, or courts from adopting a rule of apportionment in cases of injunctive relief where there are multiple habitat modifiers. Indeed, courts do not even need to develop a general rule of apportionment. When a court decides whether to grant injunctive relief, it is sitting in equity. When a court sits as a chancellor in equity, it is free to grant, deny, or tailor injunctive relief in accord with principles of equity. As the Supreme Court remarked in \textit{Romero-Barcelo}:

\textit{The traditional function of equity has been to arrive at a nice adjustment and reconciliation between the competing claims. In such cases, the court balances the conveniences of the parties and possible injuries to them according as they may be affected by the granting or withholding of the injunction. The essence of equity jurisdiction has been the power of the Chancellor to do equity and to mould each decree to the necessities of the particular case. Flexibility rather than rigidity has distinguished it.}\textsuperscript{207}

Thus, in weighing the balance of hardships and equities, a court may decide not to compel a complete abatement of the offending activity but instead only require some adjustment.\textsuperscript{208}

Despite this general rule of equity, when Congress passes a statute authorizing injunctive relief it "may go further and also mandate issuance of

\textsuperscript{205} Thompson, supra note 199, at 320–21.
\textsuperscript{206} For further elaboration of this basic point about public choice theory, see generally DANIEL A. FARBER & PHILIP P. FRICKEY, LAW AND PUBLIC CHOICE: A CRITICAL INTRODUCTION (1991).
\textsuperscript{207} Weinberger v. Romero-Barcelo, 456 U.S. 305, 312 (1982) (internal quotations and citation omitted). \textit{See also} Tenn. Valley Auth. v. Hill, 437 U.S. 153, 193 (1978) ("It is correct, of course, that a federal judge sitting as a chancellor is not mechanically obligated to grant an injunction for every violation of law."). \textit{Cf} Water Keeper Alliance v. United States Dep’t of Def., 271 F.3d 21, 34 (1st Cir. 2001) (concluding that in deciding whether to grant a preliminary injunction for an alleged ESA violation it was appropriate to consider national security interests of training on Vieques).
\textsuperscript{208} See DAN B. DOBBS, LAW OF REMEDIES 115–23, 774–75 (2d ed. 1993) (discussing the flexibility of injunctive relief and citing cases).
an injunction whenever the conduct condemned by the statute is found to exist.\textsuperscript{209} A number of commentators have argued that the ESA is such a statute, citing the famous \textit{Tennessee Valley Authority v. Hill}\textsuperscript{210} where the Court enjoined an almost-completed dam to protect a snail darter (\textit{Percina tanasi}) at the cost of millions of dollars.\textsuperscript{211} There, the Court refused to consider the hardship on the TVA because "Congress ha[d] spoken in the plainest of words, making it abundantly clear that the balance has been struck in favor of affording endangered species the highest of priorities."\textsuperscript{212} The Court’s decision in \textit{Hill} that an injunction must issue where the harm would be caused by a single defendant, does not, however, compel a similar result in the case of multiple habitat modifiers. That Congress struck the balance in favor of the protected species does not mean that Congress struck an inequitable balance between multiple defendants. As Professor Plater points out in his article on equitable remedies for statutory violations, although courts may lack discretion to substitute their own judgment for that of Congress with respect to whether a statutory violation should be abated, courts maintain discretion with respect to how to tailor the injunction.\textsuperscript{213} Judicial apportionment of responsibility for injunctive relief among multiple parties is just such a tailoring approach.\textsuperscript{214}

It is hard to see an equitable objection to proportionally allocating responsibility among joint habitat modifiers who are neither acting in concert nor engaging in an inherently wrongful action. The tougher question for most will be whether apportionment would hinder the aim of species protection. If courts began equitably apportioning injunctive relief, the wildlife agencies, or citizen plaintiffs, would need to join more defendants in any section 11 action.\textsuperscript{215} Undoubtedly, this would increase the administrative

\textsuperscript{209} Id. at 779.
\textsuperscript{210} 437 U.S. 153 (1978).
\textsuperscript{212} \textit{Hill}, 437 U.S. at 194.
\textsuperscript{213} See Plater, \textit{supra} note 211, at 592.
\textsuperscript{214} Jeff Lewin has made a related argument for apportioned injunctions in nuisance cases:

But how would apportionment work in a nuisance suit in which the plaintiff sought injunctive relief? Would the plaintiff whose share of responsibility was 20% receive 80% of an injunction? In a sense, the answer is “yes!” Or, to be more precise, the plaintiff whose share of responsibility was 20% could receive 100% of the injunctive relief sought, but might be required to compensate the defendant for 20% of the defendant’s cost of compliance.

\textsuperscript{215} Whether joinder of all defendants would be compulsory would be resolved with reference to \textit{FED. R. CIV. P. 19(a)} which provides, in pertinent part, that:

A person who is subject to service of process and whose joinder will not deprive a court of jurisdiction over the subject matter of the action shall be joined as a party in the action if (1) in the person’s absence complete relief cannot be accorded among those already parties....

\textit{FED. R. CIV. P. 19(a)}. The language of the rule suggests that where proportionate several responsibility is the rule, joinder might be required, whereas if joint and several responsibility with some right of contribution were the rule, joinder might not be compulsory. Defendants, of
burden, but that seems a reasonable price for avoiding the inequity of imposing the entire habitat burden on the most convenient habitat modifier. Moreover, the agencies could arguably pursue only the largest and most obvious habitat modifiers for their primary share and simply leave aside de minimis habitat modifiers.\textsuperscript{216} In any event, as common law courts handling tort cases during the twentieth century increasingly understood, administrative convenience cannot trump the basic unfairness of joint and several liability without contribution.

If proportional allocation of injunctive relief is the best general rule for cases involving multiple habitat modifiers, another question arises: Is proportional allocation also the best approach for allocating responsibility for instream flow harms between multiple water diverters of different priority? Certainly, a shift to ratable or proportionate sharing of the section 9 obligation would be an advance over the current approach which allows the entire regulatory burden to fall on one unlucky diverter without regard to seniority.\textsuperscript{217} But a further refinement of any equitable allocation in the water context would again consider the priority status of the diverters. Under such an approach, the agencies would be obligated to demand any necessary water from the junior-most diverter. Basically, the agencies would work their way up the priority line until they had enough water for the at-risk species.

There may be some concern that determining priority will not always be as easy as it sounds. Although the priority system is clear in concept, on many western streams the actual amount and priority of the various water rights is uncertain. The task of quantifying and prioritizing water rights via general stream adjudications has been arduous and expensive. Stream adjudications can continue for years and years without a resolution.\textsuperscript{218} If

\textsuperscript{216} In fact, at one point the Clinton Administration proposed exempting small landowners and low impact activities from section 9 where only threatened species were involved. See Endangered and Threatened Wildlife and Plants; Proposed Rule Exempting Certain Small Landowners and Low-Impact Activities From Endangered Species Act Requirements for Threatened Species, 60 Fed. Reg. 37,419, 37,421 (July 20, 1995) ("The three exceptions apply to single household dwellings on 5 acres of land or less, low-impact activities that result in the cumulative disturbance of less than 5 acres of land, and activities that otherwise are found by the Service to be negligible in their effects upon a threatened species."). Because section 9 prohibits "any person" from taking an \textit{endangered} species, 16 U.S.C. § 1538(a)(1)(B) (2000), the wildlife agencies may lack authority to create such an exception for endangered species. Recall that section 9 only applies to threatened species by virtue of the agencies use of a section 4(d) rule. \textit{See supra} note 14 (explaining this process).

\textsuperscript{217} As a matter of economic theory, proportionate sharing is also an advance over the current approach. To the extent the entire burden can be visited on a single user, all water rights along a river are destabilized. But if each water user knows the burden will be shared, only their water with the least marginal utility is put at risk.

\textsuperscript{218} \textit{See}, e.g., Reid P. Chambers & John E. Echohawk, \textit{Implementing the Winters Doctrine of Indian Reserved Water Rights: Producing Indian Water and Economic Development Without Injuring Non-Indian Water Users?}, 27 GONZ. L. REV. 447, 456 (1991/92) (noting how costly and protracted stream adjudications are because "all water users on a given stream system must be joined as parties, hundreds or even thousands of parties are commonly involved").
injunctive relief necessitated a stream adjudication to determine who was
junior, it might effectively preclude enforcement of section 9 in the river
environment. Although legitimate, the concern about the uncertainty of
existing rights is not a sufficient excuse to keep the current enforcement
approach. First, not all western watercourses are unadjudicated messes;
many are characterized by clearly defined water rights. If considering
priority is the wiser approach, its unavailability on some streams should not
preclude its use on all streams. Second, the uncertainty that bedevils most
stream adjudications is greatest with respect to the quantity and priority of
water rights established prior to a permit system and with respect to federal
and Indian reserved water rights.219 The relative priority of the water rights
established after adoption of a permit system is more easily determinable. At
the very least the agencies could make a good faith effort to pursue those
most junior by reference to the priority dates of their permits.

Still, some might argue, in a number of cases the nature of water rights
will remain uncertain. Moreover, even where the paper priorities are
determinable, demanding a junior’s water right on over-appropriated
streams (of which there are many in the West) will not actually put any
water back in the stream for the endangered species. Again however, those
worries do not lead to the conclusion that the current approach of joint and
several liability without contribution is a good idea. If anything they point
toward an approach analogous to joint and several liability with a right of
contribution. To explain, if one views administrative convenience as a pre-
eminent concern (just like one might view a plaintiff’s complete recovery in
tort as the primary concern), the wildlife agencies could be allowed to
proceed against any diverter but that diverter would then have the right to
demand that junior diverters forego their diversions in favor of her more
senior right. In water law terms, a senior targeted to bear the regulatory
burden would have the ability to “call the river.”220

Implying a right of contribution in a federal statute is permissible.221 And
this sort of call-the-river contribution makes sense. Indeed, it would
seem that a senior obligated to provide more instream flow for an
endangered species might already have an argument under state law for
calling the river. However, the difficulty with this call-the-river contribution
is that it requires state administrative action to make the ESA work.
Although a state could choose to adopt such an approach, the Tenth

219 Cf. Scott B. McElroy & Jeff J. Davis, Symposium, Revisiting Colorado River Water
(1995) (discussing how in two Arizona stream adjudications the parties struggled “ten to fifteen
years just to establish a procedure to deal with the complexities of the federal rights of the
United States and Indian tribes”).

220 “Calling the river” is a common water law expression for the idea that a senior
appropriator may ask the state engineer or water regulator to curtail the diversions of upstream
juniors so that the senior may receive his full water right. See George A. Gould & Douglas L.

221 A right of contribution, for example, was implied under CERCLA. See Centerior Serv. Co.
Amendment may preclude imposing it on the state.\textsuperscript{222} It thus may still be a better approach for the wildlife agencies to suffer some additional administrative burden and identify and pursue junior appropriators with sufficient water to satisfy the habitat concerns. To the extent juniors have concerns about being unfairly targeted because seniors are not making beneficial use of their senior water rights, the juniors already have a contribution claim under state law in the form of a waste action.\textsuperscript{223}

On balance, allocating injunctive relief by priority, just like determining causation by priority, would be an equitable and efficient advance over current law. The seniors’ legitimate reliance interests in diverting their full amount prior to junior diversions would be protected. Allocating by priority would thus promote greater certainty and predictability. Rather than guessing at whom the wildlife agencies might target for an injunction or in an HCP negotiation, the parties would have a firm understanding of where the allocation burden is likely to fall. Not only would this make negotiation easier but the clearer delineation of the property right would promote much needed market reallocation of water to more efficient uses.\textsuperscript{224}

IV. POTENTIAL CONCERNS WITH APPLYING PRIORITY STATUS TO QUESTIONS OF CAUSATION AND APPORTIONMENT

Because section 9 has been employed so sparingly, particularly in cases of river harm, there remains room for integrating principles of prior appropriation into the causation analysis and also into the apportionment of responsibility. Senior appropriators would not be considered the cause of harm, or be allocated injunctive responsibility, unless shutting down all diverters of junior priority would be insufficient to protect the threatened or endangered wildlife. Some of the concerns about such an approach have been discussed above. This brief section addresses two more potential concerns with considering priority in determining causation and allocation.

\textsuperscript{222} See supra note 125 (discussing this Tenth Amendment principle). David Filippi has suggested that the federal agencies make a greater effort to accommodate state water users by pursuing some form of a memorandum of agreement with the state. See Filippi, supra note 3, at 22-26 (“Such coordination could enable the water resources department and its local staff to work with water users to undertake voluntary flow restoration measures, which might obviate the need for enforcement action.”).

\textsuperscript{223} For an overview of the doctrine that water rights will be lost if not put to beneficial use (i.e. wasted), see generally Janet C. Neuman, \textit{Beneficial Use, Waste, and Forfeiture: The Inefficient Search for Efficiency in Western Water Use}, 28 ENVTL. L. 919 (1998) (reviewing historical application of beneficial use doctrine and its future prospects). Implied a contribution action for waste might enhance the efficiency gains of allocating with reference to priority by creating an additional incentive to make beneficial use of a water resource. That said, the existing waste doctrine has had limited impact in that regard. \textit{Id.} at 985-87.

\textsuperscript{224} See supra notes 106-08 and accompanying text (discussing why clarity of property rights promotes market solutions).
A. Fairness to Junior Appropriators

Some might worry that even if allocating the entire responsibility to the most junior appropriators is more efficient, it appears unfair. Although juniors have notice that they might lose their right to divert in times of natural drought, a critic might argue, juniors are not necessarily on notice that they will be responsible for changes in the law, or what some have called a “regulatory drought.” Under this view, watershed health is a community responsibility and it is not equitable to have a few juniors bear the entire burden. This argument, however, does not withstand scrutiny. As an initial matter, it is not clear that destabilizing all water rights to avoid greater destabilization of already tenuous rights produces a net gain in fairness. Moreover, if the core fairness concern is the juniors’ reliance interest, that concern points toward greater solicitude for senior appropriators. As a simple historical matter, most senior rights in the West were appropriated at a time when the appropriator understood there to be little chance of regulatory interference with his water right. Another criticism of this fairness concern is that it is premised on the notion that natural drought and regulatory drought are wholly separable. However, another way to conceive of any instream flow problem is as a “hybrid drought.” Regulations mandating more instream flow for environmental purposes tend not to matter in high flow years. It is typically a combination of natural drought and regulation that creates the problem. To the extent that regulatory impact cannot be neatly disconnected from a natural drought, fairness suggests that the junior should bear the hybrid burden.

225 See George A. Gould, The Public Trust Doctrine and Water Rights, 34 ROCKY MT. MIN L. INST. 25-1, 25-36 (1988) (suggesting that allocating by priority in the public trust context “seems inequitable [in charging junior appropriators] with the risk of unpredicted changes in the law”). To the extent the appropriation occurred after the Mono Lake case, discussed infra note 230, or the passage of the ESA, a junior appropriator’s reliance argument is weakened, although neither the Mono Lake case nor the ESA set forth an allocation mechanism.

226 Consider, for instance, the situation in which the senior appropriator has a 1910 water right and the junior a 1975 right, which came into existence two years after the passage of the ESA. Although there is significant doubt about whether the ESA inhered in the senior’s title as part of the federal government’s latent right to regulate, there seems little doubt that the ESA inhered in the title of the junior appropriator. Recall that in Lucas v. South Carolina Coastal Council, 505 U.S. 1003 (1992), the Court held that where a regulation denied a property owner all economically viable use of her property it would be a per se taking unless the regulation was justified by background principles of common law that inhered in the property right to begin with. Id. at 1015–16. Whether the ESA inheres in the junior’s title actually presents an interesting twist on the Supreme Court’s recent decision in Palazzolo v. Rhode Island, 533 U.S. 606 (2001). There the Court held that the fact that a property owner purchased property after passage of the regulation prompting the takings claim is not alone sufficient to avoid a takings claim. Id. at 626–30. The Court also held that the timing of acquisition could be considered as part of the Penn-Central balancing test which includes the property owner’s reasonable investment-backed expectations. Id. What distinguishes the water situation from Palazzolo is that the junior did not acquire his right from another private water rights holder. He acquired it directly from the state. Where the post-regulation acquisition of title is from the state, Palazzolo’s rejection of a per se rule may not hold.

227 See supra note 9 (discussing Professor Brian Gray’s “hybrid drought” idea).
Even if one continues to reject the idea of imposing the entire burden on junior appropriators as a matter of fairness, that is not a persuasive argument for the current system of joint and several liability without contribution where agency discretion determines burden allocation. If fairness to junior diverters is the concern, then, at the very least, responsibility should be allocated in some proportional fashion. As an example, if ten percent increased flow were necessary to meet the regulatory burden, each user could be required to decrease her diversion by ten percent.\(^2\) Indeed, some might argue that as a matter of economic theory, this sort of proportional allocation might even be preferred over allocation by priority. If the last increment of each diverter’s water has diminishing marginal utility, it would arguably be more efficient to destabilize that marginal amount of water for every diverter rather than the whole water right of a few juniors. That gain in efficiency, however, must be balanced against the unfairness to senior diverters as well as the increased costs of pursuing a remedy from all of the diverters.

It is for this latter reason that California, in public trust doctrine cases, has refused to apportion trust responsibilities among multiple diverters.\(^2\) In

\(^2\) In an eastern riparian rights jurisdiction, that proportional allocation could also take the form of a reasonable use inquiry, although a more quantitative division would be more efficient. On reasonable use and riparian rights generally, see 1 waters and water rights §§ 7.01–7.02 (1991) (Robert E. Beck ed., 1991). The Restatement (Second) of Torts describes reasonable use allocation as follows:

The determination of the reasonableness of a use of water depends upon a consideration of the interests of the riparian proprietor making the use, of any riparian proprietor harmed by it and of society as a whole. Factors that affect the determination include the following: [a] The purpose of the use, [b] the suitability of the use to the watercourse or lake, [c] the economic value of the use, [d] the social value of the use, [e] the extent and amount of the harm it causes, [f] the practicality of avoiding the harm by adjusting the use or method of use of one proprietor or the other, [g] the practicality of adjusting the quantity of water used by each proprietor, [h] the protection of existing values of water uses, land, investments and enterprises, and [i] the justice of requiring the user causing the harm to bear the loss.

Restatement (Second) of Torts § 850A (1977). In theory, if reasonable use principles were applied, a court or agency would have broad discretion to accomplish equity while also working to achieve the most efficient solution. Priority could be taken into consideration but so could extent of harm and the social and economic value of various water uses. Unfortunately, it is hard to be confident that this theory can be translated into practice. With all of the judicial and agency discretion inherent in such a multi-factored balancing test, water users would be given little, if any, additional certainty about their potential exposure than they currently have. See generally 1 waters and water rights, supra, § 9.01 (reviewing scholarship critical of reasonable use decision making as "too unpredictable" and as continually "unstable because what is reasonable will change with every significant change of circumstance").

\(^2\) Under the modern public trust doctrine first articulated in Illinois Central Railroad v. Illinois, 146 U.S. 387 (1892) (finding that Illinois could revoke a prior grant to the Illinois Central Railroad of approximately 1,000 acres of submerged lands adjacent to Chicago without paying any compensation), a state is said to hold title to land under navigable water in trust for the public and any grant of such lands may be revoked or limited without payment of just compensation. See generally 4 waters and water rights, supra note 228, § 30.02 (providing an overview of the doctrine); James R. Rasband, The Disregarded Common Parentage of the Equal Footing and Public Trust Doctrines, 32 land & water L. Rev. 1, 1–62 (1997) (discussing
the famous Mono Lake case, Los Angeles originally argued for an apportioned approach, cross-complaining against 117 other individuals and entities claiming water rights in the Mono Basin. Ultimately, however, the trust obligation to restore Mono Lake was imposed only on Los Angeles. What was unstated in the Mono Lake case—that the public trust responsibility could be allocated to the party against whom the complaint was drawn—was stated explicitly by the State Water Resources Control Board in Water Right Order 84-2. There, the Board specifically rejected an argument that the public trust limitations could not be enforced against only one diverter but "must be made simultaneously or not at all." Presumably, the Board’s concern was that obligating the state to pursue all water rights before a trust resource could be protected imposed too great an administrative burden. But to the extent the Board was worried about historical origins of the doctrine). Although originally limited to land under navigable waters, and to the purposes of protecting navigation, commerce, and fishery, the doctrine has been extended in some states, most prominently and aggressively California, to water rights obtained by prior appropriation and to the broader purposes of protecting the public’s interest in recreational and environmental amenities loosely associated with navigable waters. See James R. Rasband, Equitable Compensation for Public Trust Takings, 69 U. COLO. L. REV. 332, 379 (1998) (discussing this development). This expansive view of a trust doctrine that allows states to revoke or limit water rights in the interest of protecting the public’s interest in environmental amenities begs the question of which water rights should be revoked or limited; in other words, which diverters are interfering with the trust resources and which diverters should bear responsibility for the interference.

230 California first extended the public trust doctrine to water rights in National Audubon Society v. Superior Court of Alpine County, 658 P.2d 709 (Cal. 1983), cert. denied, 464 U.S. 977 (1983), its well-known decision regarding the right of Los Angeles to withdraw water from the tributaries of Mono Lake. Under the public trust doctrine of National Audubon Society, the state retains ongoing supervisory control over water rights and may alter existing appropriations to protect public trust resources. Id. at 727-28.

231 Id. at 716.

232 See In re Amendment of the City of Los Angeles’ Water Right Licenses for Diversion of Water from Streams Tributary to Mono Lake (Water Right Licenses 10191 and 10192, Applications 8042 and 8043) City of Los Angeles, Licensee, Decision 1631, 1994 WL 758388, at *1-2 (Cal. St. Water Res. Control Bd., Sept. 28, 1994). In its decision remanding the case to the state board, the California Supreme Court had only suggested that “some responsible body ought to reconsider the allocation of the waters of the Mono Basin.” Nat’l Audubon Soc’y, 658 P.2d at 729.


234 Id. at *14. The Board decided that “[n]othing in the Audubon decision requires the Board to initiate proceedings to exercise jurisdiction over every possible water right on public trust grounds.” Id. at *14. The State Board appears to have continued to take this approach. At least partly in response to public trust claims, it has altered and restricted diversions of major diverters in order to protect fisheries and water quality, without attempting to include all diverters and without reference to priority of appropriation. See In the Matter of Complaints Against Diversion and Use of Water By the California-American Water Company, 1996 WL 464902, Order 95-10, at *11 (Cal. St. Water Res. Control Bd., July 6, 1995) (“Cal-Am diversions, standing alone, are not the sole cause of current conditions in the Carmel River.... Nevertheless, Cal-Am’s combined diversions from the Carmel River constitute the largest single impact to the instream beneficial uses of the river.”).

235 Professor Weber makes this point, arguing that if public trust obligations had to be shared among all diverters, it would have “required the equivalent of a streamwide adjudication
administrative convenience and not about fairness among diverters, another solution was available, namely allocating trust burdens by priority. Allowing the trust obligation to be imposed on whomever the state chooses without the targeted defendant having anything analogous to a right of contribution makes no more sense in the public trust doctrine context than it does under the ESA.

B. Fifth Amendment Implications

A second potential concern for some with determining causation or allocation by reference to priority is that it might prove more costly to public coffers by strengthening diverters' takings claims. If the regulatory burden is assigned by priority, it is more likely that some appropriators would be denied complete use of their water rights. This complete wipe-out would create a stronger argument for a per se, or categorical, taking under the Supreme Court's decision in *Lucas v. South Carolina Coastal Council.*236 The concern about an increase in total wipe-out takings claims is probably exaggerated. As an initial matter, it is not clear that a total wipe-out is necessary to fit water cases into a categorical takings category. In a recent decision in the Court of Federal Claims,237 a court held that the ESA worked a physical taking when compliance with its terms merely reduced a diverter's water right.238

Even if this physical taking rationale does not survive, it is not clear that a total denial of water would amount to a per se taking. Consider again the hybrid drought concept. If the regulatory drought is inseparable from the natural drought, it would seem to remove the case from the total wipe-out category (at least a portion of the water loss can be said to inhere in the junior appropriator's property right) and require a balancing approach to the takings question under *Penn Central Transportation Company v. New York.*239 There is also some question about whether even a total wipe-out would constitute a taking if the water were restored in a couple of years.

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236 See *Lucas v. South Carolina Coastal Council,* 505 U.S. 1003, 1015 (1992) (holding that where a regulation eliminates all economically viable use of property it will constitute a per se taking unless the regulation was justified by background principles of common law that inhered in the property right to begin with). See generally Douglas L. Grant, *Western Water Rights and the Public Trust Doctrine: Some Realism About the Takings Issue,* 27 ARIZ. ST. L.J. 423 (1995).


239 438 U.S. 104, 124–25 (1978) (holding that to determine whether a regulation has worked a taking a court must weigh the economic impact on the property owner, the interference with distinct, investment-backed expectations, and the character of governmental action).
Although at first glance such a temporary denial might appear to be a temporary taking under the *First English Evangelical Lutheran Church of Glendale v. County of Los Angeles (First English)*, the Supreme Court's recent opinion in *Tahoe-Sierra Preservation Council v. Tahoe Regional Planning Agency (Tahoe)*, which held that a thirty-two month moratorium on development was not a taking, suggests that the Court may now be leaning a different direction. Without delving into all the possible arguments, it is sufficient to note that in light of current takings law, it is unclear that a complete denial of a junior's right to appropriate will be a taking.

Even if allocating by priority were to result in stronger *per se* takings claims, that should not be a criticism of the priority approach. Instead it is an additional equitable benefit. One problem with the current regime is that the entire regulatory burden falls on a single appropriator without respect to priority. This inequity could be alleviated by proportional allocation which would at least spread the burden among all water users. But for the reasons described above, proportional allocation would remain inequitable to senior rights and would increase administrative costs. By contrast, taking water away from the junior-most appropriator(s) and then requiring the public to compensate the junior(s) respects the reliance interests of senior appropriators, captures the efficiency gains of honoring the priority system, and equitably spreads the regulatory burden over the public, all of whom benefit from the regulation. At bottom, avoiding *per se* takings claims is simply an inadequate justification for inequitably and inefficiently targeting senior rights holders. If fear of *per se* takings claims must be the operative

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242 *Id.* at 332. The Court in *Tahoe* distinguished *First English* on the grounds that it only addressed the appropriate measure of compensation once a temporary regulatory taking had been established and had not addressed the prior question of whether the regulation at issue constituted a temporary taking. *Id.* at 328-29.
243 A variety of commentators have written about the application of takings law to water rights. See generally Douglas L. Grant, *Western Water Rights and the Public Trust Doctrine: Some Realism About the Takings Issue*, 27 ARIZ. ST. L.J. 423 (1995); see Brian E. Gray, *Takings and Water Rights*, 48 ROCKY MTN. MIN. L. INST. 23-1 (2002); Melinda Harm Benson, *The Tulare Case: Water Rights, the Endangered Species Act, and the Fifth Amendment*, 32 ENVTL. L. 551 (2002). Although the courts' view would surely be a more reliable indicator of how takings law applies to water rights, there simply is not much case law on the issue. Only one court has specifically found a regulatory taking of a water right. *See Tulare Lake*, 49 Fed. Cl. 313 (2001). *Cf.* Franco-American Charolaise, Ltd. v. Okla. Water Res. Bd., 855 P.2d 568, 576-77 (1990) (suggesting that Oklahoma's proposed switch from a riparian rights system to an appropriative rights system could give rise to a takings claim under the Oklahoma Constitution because it would deny existing riparians their vested interest in making prospective reasonable use of the stream); *Hage v. United States*, 51 Fed. Cl. 570 (2002) (concluding that Hage had a property interest in his water rights and that by canceling his grazing permit and then denying him access to the associated state water rights and federal ditch rights, the federal government may have taken his water rights).
244 *See supra* text accompanying notes 228-29 (discussing this inefficiency).
245 It would be naïve to suggest that government officials do not, and should not, consider the public costs associated with imposing burdens on different property owners. Consider, for example, a state decision to condemn land for a public highway. The state could run the
principle, it would at very least be better to adopt proportional allocation than to use the current approach.

V. CAUSATION UNDER SECTION 7

Whereas FWS and NMFS have not been aggressive in using section 9 to remedy river harms, they have been more willing to employ section 7, in large part because its application avoids some of the knotty causation questions that arise under section 9. Section 7 applies to a wide variety of government conduct and thus has a large potential impact. Section 7(a)(2) includes within its scope "any action authorized, funded, or carried out by such agency." Federal "action" is further defined by regulation to mean "all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies in the United States or upon the high seas." The number of water-related activities authorized, funded, or carried out by federal agencies and thus subject to section 7 is broad and continues to grow. Almost all significant dams in the West are licensed by the Federal Energy Regulatory Commission (FERC) and must be relicensed. There are also numerous federal water projects on western rivers. As found in one 1996 study, "184 individual species with habitat affected by federal Reclamation projects and water service areas [were] highway through a poor section of town or a rich section of town. The condemnation costs will be vastly different. The relevant question is whether the condemnation costs should be the prime consideration of where to site the road. Although cost is not irrelevant, it should not entirely trump other considerations. Fairness between the two sections of town, the costs of the road itself, and the environmental impact of the road are also important considerations.

See supra notes 108-99 and accompanying text (discussing this reluctance). See also Eric Biber, Comment, The Application of the Endangered Species Act to the Protection of Freshwater Mussels: A Case Study, 32 ENVTL. L. 91, 121 (2002) (noting that "[i]nterviews with Service staff confirmed that section 9 has not been used at all with respect to actions by private landowners on private lands abutting streams").

See supra notes 108-99 (discussing agency preference for section 7 over section 9). See also infra Part V (discussing how the agencies' approach to section 7 has avoided causation questions).


50 C.F.R. § 402.02 (2002). The regulation also gives some examples which include: "(a) actions intended to conserve listed species or their habitat; (b) the promulgation of regulations; (c) the granting of licenses, contracts, leases, easements, rights-of-way, permits, or grants-in-aid; or (d) actions directly or indirectly causing modifications to the land, water, or air." Id.

See generally AMERICAN RIVERS, RIVER RENEWAL: RESTORING RIVERS THROUGH HYDROPOWER DAM RELICENSING, at http://www.amrivers.org/hydropowertooolkit/riverrenewal.htm (last visited July 20, 2003) (noting that in the next 15 years, 550 projects will need to be relicensed).
either listed or proposed for listing under the ESA.\textsuperscript{251} Likewise any dredging
and filling requires a 404 permit from the Army Corps of Engineers.\textsuperscript{252}

In theory, the federal obligation to "insure that any action authorized,
funded, or carried out by such agency... is not likely to jeopardize the
continued existence of any endangered species or threatened species or
result in the destruction or adverse modification of [a species's critical
habitat]\textsuperscript{253} presents two causation issues: Whether an action will cause
jeopardy and whether it will cause adverse modification of critical habitat.
In practice, however, the wildlife agencies have treated the duty to avoid
adverse modification of critical habitat as encompassed by the duty not to
jeopardize or take protected species.\textsuperscript{254} With recent court decisions

\begin{itemize}
\item\textsuperscript{251} Michael R. Moore et al., \textit{Water Allocation in the American West: Endangered Fish Versus
Irrigated Agriculture}, 36 NAT. RESOURCES J. 319, 320-21 (1996) (providing empirical analysis of
potential water allocation conflicts between endangered fish species and irrigated agriculture in
western river systems). The article further notes:

\begin{quote}
Reclamation is the largest supplier of irrigation water in the western United States,
regularly delivering more than 25 million acre feet (maf) per year to farms. This water
irrigates 9-10 million cropland acres, or roughly one-half of all surface-water irrigated
acres in the West. Reclamation-served agriculture relies on a vast network of water
storage and conveyance projects. Reclamation facilities include: 355 storage reservoirs,
254 diversion dams, 16,047 miles of canals, and 37,193 miles of laterals.
\end{quote}
\textit{Id} at 333.

\item\textsuperscript{252} See Federal Water Pollution Control Act, 33 U.S.C. § 1344 (2000). \textit{See also} Riverside Irrig.
Dist. v. Andrews, 758 F.2d 508 (10th Cir. 1985) (denying 404 nationwide permit for depositing
dredge and fill material for construction of dam because of adverse affect on the habitat of the
endangered whooping crane).

\item\textsuperscript{253} 16 U.S.C. § 1536 (a)(2) (2000). To accomplish this objective, section 7 establishes a
consultation procedure that obligates the federal action agency (the agency that is authorizing,
funding, or carrying out the activity) to consult with the applicable wildlife agency, either FWS
or NMFS, on several issues. First, it must inquire whether any protected species is in the vicinity
of the proposed activity. \textit{See id.} § 1536(a)(3), (c)(1). If one is present, the action agency must
then prepare a "biological assessment" to decide whether the activity "may affect" the protected
species. \textit{Id}. If a species may be affected, the wildlife agency must prepare a biological opinion to
determine whether the activity will take, jeopardize, or adversely modify the critical habitat of
the protected species. \textit{Id.} § 1536(b). If jeopardy or adverse modification is found, the wildlife
agency must suggest "reasonable and prudent alternatives" to avoid jeopardy or adverse
modification. \textit{Id.} § 1536(b)(3)(A). Alternatively, if the activity will result in take but not jeopardy
or adverse modification, the wildlife agency shall issue an incidental take statement subject to
terms and conditions necessary to minimize the impact. \textit{Id.} § 1536(b)(4). On the consultation
process, see generally Ruhl, \textit{supra} note 202, at 365-66.

\item\textsuperscript{254} \textit{See generally} BEAN & ROWLAND, \textit{supra} note 81, at 253-59. \textit{Compare} 50 C.F.R. § 402.02
(2002) (defining jeopardize as to engage in any action that could be "expected to reduce the
likelihood of both the survival and recovery of a listed species") \textit{with id.} (defining adverse
modification as "alteration [of habitat] that appreciably diminishes the value of critical habitat
for both the survival and recovery of a listed species").
condemning the agencies’ approach to critical habitat, this may change, but thus far the causation analysis has been the same.

FWS defines the phrase “jeopardize the continued existence of” to mean engaging “in 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 in the wild by reducing the reproduction, numbers, or distribution of that species.” In light of this definition, jeopardy is at once easier and more difficult to prove than take. On the one hand, because it is possible to take a limited number of individual animals without appreciably jeopardizing the survival and recovery of the species, proof that an action causes actual injury to a particular animal will not necessarily be sufficient to prove jeopardy. On the other hand, because jeopardy is a population-level analysis, the agency need not trace the harmful effect of a particular action to a particular animal as is the case with section 9. This avoids the problem of proving causation on a more probable than not basis in cases of significant background mortality. In this regard, consider anew the hypothetical posed above. Assume that under current habitat conditions the risk of owl predation is ten percent and a federally permitted harvest will increase that risk to fifteen percent. In this situation it is not possible to prove a section 9 take. With respect to any particular owl within the project area, one cannot know on a more probable than not basis that the harvest will proximately cause a take. If the harvest goes forward and a dead owl shows up, the chances that the owl was harmed by the harvest are only one in three. Under section 7, however, the analysis is different. The test for jeopardy is whether the harvest will “reduce appreciably the likelihood of . . . survival and recovery.” If the increased

255 See Sierra Club v. United States Fish and Wildlife Serv., 245 F.3d 434, 436 (5th Cir. 2001) (holding FWS’s definition of adverse modification facially invalid because critical habitat is an area essential to conservation and conservation of species indicates a broader duty than merely ensuring their survival); N.M. Cattle Growers Ass’n v. United States Fish and Wildlife Serv., 248 F.3d 1277, 1284-85 (10th Cir. 2001) (also taking the view that critical habitat protection is not coterminous with jeopardy protection).

256 50 C.F.R. § 402.02 (2002).

257 See supra text accompanying notes 77-78.

258 50 C.F.R. § 402.02 (2002). Of course, this “appreciably reduce” inquiry is still fraught with biological uncertainty, which is one of the reasons that the wildlife agencies have been so flexible (or, some might say, subject to political influence) in consulting with action agencies and in the mitigation requirements they have imposed on those agencies. See, e.g., Mary Christina Wood, Reclaiming the Natural Rivers: The Endangered Species Act as Applied to Endangered River Ecosystems, 40 ARIZ. L. REV. 197, 252 (1998) (“If the Services’ implementation of the ESA in [the Columbia and Colorado] basins is consistent with the national pattern, the broad scientific discretion afforded in the section 7 jeopardy mandate has invited considerable political influence and has compromised the purely scientific approach Congress mandated in the Act itself.”); Oliver A. Houck, The Endangered Species Act and its Implementation by the U.S. Departments of Interior and Commerce, 64 U. COLO. L. REV. 277, 319 (1993) (observing “recurring evidence that—whatever the law—the (reasonable and prudent) alternatives found for controversial projects have been strongly influenced by local and national politics”). Agencies are also able to be flexible because their decisions are given significant deference upon judicial review. See, e.g., Marsh v. Or. Natural Res. Council, 490 U.S. 360, 378 (1989) (“[A]n agency must have discretion to rely on the reasonable opinions of its own qualified
risk to the owl population from the harvest is "appreciable," the harvest may be enjoined or limited. Finally, to the extent "jeopardy" encompasses federal action that may directly or indirectly inhibit the "recovery of a listed species," even proof that an activity will increase the risks of population decline may not be necessary.

Another interesting facet of the agencies' approach to jeopardy is how it largely avoids the joint causation issues that are problematic in the section 9 context. To assess whether an action will reduce the likelihood of survival and recovery, FWS begins by analyzing the so-called environmental baseline:

The environmental baseline includes the past and present impacts of all Federal, State, or private actions and other human activities in the action area, the anticipated impacts of all proposed Federal projects in the action area that have already undergone formal or early section 7 consultation, and the impact of State or private actions which are contemporaneous with the consultation in process.

In determining whether a proposed action is likely to result in jeopardy, FWS also considers the "cumulative effects" of the proposed action, meaning "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area." In essence, FWS treats contemporaneous and future state and private actions as if they were past actions (i.e. part of the environmental baseline) for purposes of causation. In this way, FWS simply avoids any difficult questions about joint causation or allocation of responsibility among contemporaneous habitat modifiers. The ability to avoid these questions helps explain why FWS and NMFS have been quicker to use section 7 than section 9.

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259 50 C.F.R. § 402.02 (2002).
260 Id. (emphasis added). See generally SULLINS, supra note 154, at 68-69 (discussing environmental baseline analysis). Using the environmental baseline has meant that the more degraded the particular habitat or species, the more likely it is that any further degradation will be said to cause jeopardy. Id.
261 50 C.F.R. § 402.02 (emphasis added). See also SULLINS, supra note 154, at 82-83. "Cumulative effects" should be distinguished from "indirect" effects of a proposed action. Indirect effects are those which "are caused by or result from the proposed agency action, are later in time, and are reasonably certain to occur." U.S. FISH & WILDLIFE SERVICE & NATIONAL MARINE FISHERIES SERVICE, ENDANGERED SPECIES CONSULTATION HANDBOOK 4-27 (1998).
262 Although the population focus and the environmental baseline approach have made section 7 a more attractive tool to the wildlife agencies than the narrower take prohibition of section 9, the agencies have still been cautious about clearly defining what actions cause jeopardy. Just as under section 9, the agencies' approach, when they have acted, has been to threaten prosecution and push for a habitat conservation plan and incidental take permit. The agencies have tended to use a potential jeopardy finding under section 7 as leverage to negotiate alternatives or modifications to the proposed activity, so as to avoid possible jeopardy. See Daniel J. Rohlf, Jeopardy Under the Endangered Species Act: Playing a Game Protected Species Can't Win, 41 WASHBURN L.J. 114, 115 (2001) ("In their day to day implementation of section 7, the Services seldom use the jeopardy standard to draw a clear biological line in the sand; rather, the concept of jeopardy often amounts to little more than a vague threat employed by FWS and NMFS to negotiate relatively minor modifications to federal
Eschewing joint cause analysis and allocation questions for federal action under section 7 has some merit. Congress intended federal agencies to bear the brunt of species conservation responsibility under the ESA. Recall that section 7(a)(1) requires federal agencies affirmatively to "carry[] out programs for the conservation of endangered species and threatened species." Likewise section 4(f) requires FWS and NMFS to develop recovery plans "for the conservation and survival of endangered species and threatened species." Although thus far section 7(a)(1)'s conservation duty and the obligation to develop recovery plans have been largely dead letters, these affirmative duties suggest Congress intended federal actors to do more than simply avoid causing harm on their own. Federal agencies were to make a bad situation better, or at very least, not to make a bad situation any worse.

If avoiding joint cause questions through use of the environmental baseline approach makes sense with respect to past or perhaps even contemporaneous habitat modification, its application to future actions, except those necessarily caused by the federal action, is dubious. It would have been a stark departure from long-standing causation principles if Congress had concluded that agency action could cause jeopardy even though when the federal action was completed jeopardy would not have been apparent. It also would be odd if Congress intended the jeopardy determination to include future state and private actions when those actions would be subject to section 9's prohibition on harmful habitat modification.

and non-federal actions.

263 16 U.S.C. § 1536(a)(1) (2000). The conservation of protected species requires an agency to "use ... all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this chapter are no longer necessary." Id. § 1532(3). These methods and procedures include, but are not limited to, all activities associated with scientific resources management such as research, census, law enforcement, habitat acquisition and maintenance, propagation, live trapping, and transplantation, and, in the extraordinary case where population pressures within a given ecosystem cannot be otherwise relieved, may include regulated taking.

Id. 264 Id. § 1533(f)(1).

265 See Rohlf, supra note 262, at 117 ("To the chagrin of many environmental organizations, the affirmative conservation mandates of section 7(a)(1) have historically exerted little influence over the actions of federal agencies. FWS and NMFS have never issued regulations interpreting or implementing these requirements, save for a provision in their joint consultation regulations which authorizes these agencies to include a separate section in biological opinions that provides federal action agencies with 'conservation recommendations.' However, this regulatory provision explicitly emphasizes that such recommendations 'are advisory and are not intended to carry any binding legal force.'") (quoting 50 C.F.R. § 402.14(j) (2002)); Federico Cheever, Recovery Planning, the Courts and tMe Endangered Species Act, 16 NAT. RESOURCES & ENV'T 106 (2001) (discussing limited role of recovery requirement and advocating renewed focus on recovery); Federico Cheever, The Road to Recovery: A New Way of Thinking About the Endangered Species Act, 23 ECOLOGY L.Q. 1 (1996) (making related argument); J.B. Ruhl, Section 7(a)(1) of the "New" Endangered Species Act: Rediscovering and Redefining the Untapped Power of Federal Agencies' Duty to Conserve Species, 25 ENVTL. L. 1107 (1995) (discussing the potential and current understanding of section 7(a)(1) and section 4(f)).
Whether Congress intended future actions to be included within the environmental baseline is important to the water context because, as explained above, under a system of prior appropriation, junior diversions logically and legally occur in the “future.” Where, for example, a Bureau of Reclamation project with senior water rights is subject to relicensing, is it fair to the Bureau, or to those private parties who contract with the Bureau for water, to include in the environmental baseline the water diversions of junior appropriators? Although the Bureau’s potential affirmative conservation obligations make this a more difficult case than with a private diverter under section 9, on balance, when jeopardy depends upon stream flow, a principled approach to causation under section 7 suggests that appropriations junior in time to the federal project should not be considered part of the environmental baseline.

Perhaps the most interesting point to take from this short analysis of section 7 is that it may help explain the federal wildlife agencies’ rather confused approach to causation under section 9. One way of understanding the agencies’ imposition of joint and several responsibility without the opportunity for contribution is as an application of the environmental baseline approach. If an agency or conservation biologist assumes a baseline that includes contemporaneous actions and then looks at harm, they do not even see questions, necessitated by *Sweet Home’s* proximate cause requirement, about multiple habitat modifiers, joint causation and equitable allocation. Likewise, to the extent the agencies understand harm as habitat modification that increases population risks (the section 7 approach) rather than as more probably than not causing harm to particular animals (the section 9 approach), it may explain their seeming ignorance of the important causation questions presented by background risk. Whereas section 9 and *Sweet Home* require agencies to prove that habitat modification, in most contexts, at least doubles (i.e. makes more probable than not) any background risk to identified animals, no such requirement exists under section 7. Finally, understanding how the population focus and the environmental baseline approach of section 7 affect the analysis of causation and allocation may clarify the regulated community’s frustration with agency over-reaching in the negotiation of habitat conservation plans. Although the project proponent will want to emphasize fair allocation and the agency’s difficult proof on causation, the agency will likely be unimpressed by such arguments because in deciding whether to authorize an incidental take permit, it will be thinking in section 7 terms. Although both inquiries are legitimate parts of an HCP negotiation, disentangling the

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266 See *supra* Part II.D.3 (discussing why this is the case under section 9 except in those circumstances where the habitat modification alters the entire habitat of the endangered population).

267 See *supra* note 204 (discussing this concern).

268 Recall that agencies are obligated to ensure that any action they authorize “is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of [a species’s critical] habitat.” 16 U.S.C. § 1536(a)(2) (2000).
two would clarify the relative strengths and weaknesses of the bargaining positions.

VI. CONCLUSION

If agencies and courts tasked with enforcing the ESA desire to match action to consequence and responsibility to blame, they will need to consider another path from the one they have started down. Whether by judicial elaboration of section 9 or by agency rulemaking, a different approach to causation and allocation should be adopted. The proximate causation inquiry under *Sweet Home* should account for background risks, for multiple habitat modifiers and, in prior appropriation settings, for priority. And once it is determined that harm is the proximate result of the actions of multiple habitat modifiers, the agencies need to reconsider their approach of allowing political dynamics and administrative expediency to determine the target of the regulatory burden. Rather than taking the discredited and rejected tort law approach of imposing joint and several responsibility without any right of contribution, the agencies and courts should move toward some equitable apportionment approach. Where instream flow is the habitat issue, allocation by priority, on balance, seems the wisest course, particularly given the ESA’s explicit commitment to cooperation with states on water resource issues.\(^{269}\) In other joint habitat modification situations where individual contribution to the harm is discernible, responsibility would best be allocated in proportion to those individual contributions. Finally, to the extent the wildlife agencies are concerned that either of these two approaches might be too great a burden, they should at least consider some good faith obligation to join major habitat modifiers or some form of contribution action. In the water context, that contribution action could take the form of allowing targeted seniors to call the river. Whatever the preferred approach, the time is ripe for federal wildlife agencies and courts applying section 9 to reconsider their approach to causation of wildlife harm and to allocation of responsibility among joint habitat modifiers.

\(^{269}\) See *supra* text accompanying notes 99–100 (discussing the federal obligation to cooperate).