In the United States Court of Federal Claims

No. 05-168L
Filed: December 5, 2011

CASITAS MUNICIPAL WATER DISTRICT, Plaintiff, v. THE UNITED STATES, Defendant.	Fifth Amendment Taking: (1) The only compensable water right that can be obtained under California law is a right to beneficial use. (2) Defendant cannot successfully invoke the takings defense identified in Lucas v. S.C. Coastal Council, 505 U.S. 1003 (1992), where defendant has failed to show that the restriction on water use imposed upon plaintiff pursuant to the Endangered Species Act duplicates the result that could have been achieved under background principles of state law. (3) Plaintiff's takings claim will not accrue until the government's action interferes with plaintiff's beneficial use of water.

Roger J. Marzulla and Nancie G. Marzulla, Marzulla Law, LLC, Washington, DC, counsel for plaintiff.

Jennifer L. Spaletta, Herum Crabtree, Stockton, CA, counsel for Stockton East Water District, and J. David Breemer, Sacramento, CA, counsel for Pacific Legal Foundation, arguing as *amici curiae* in support of plaintiff.[1]

William J. Shapiro, Kristine S. Tardiff, and E. Barrett Atwood, with whom was Assistant Attorney General Ignacia S. Moreno, Department of Justice, Environment and Natural Resources Division, Natural Resources Section, Washington, DC, counsel for defendant. Kaylee Allen, Department of the Interior, and Christopher Keifer, National Oceanic and Atmospheric Administration, of counsel.

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[1] In addition to the briefs and argument offered by the Stockton East Water District and the Pacific Legal Foundation, the court received *amicus curiae* briefs in support of plaintiff from Daniel J. O'Hanlon, Kronick, Moskovitz, Tiedemann & Girard, Sacramento, CA, on behalf of the Association of California Water Agencies, et al.

Deputy Attorney General Tara L. Mueller, California Office of the Attorney General, Oakland, CA, counsel for California State Water Resources Control Board, and John D. Echeverria, Vermont Law School, South Royalton, VT, counsel for Natural Resources Defense Council, arguing as *amici curiae* in support of defendant.

OPINION

WIESE, Judge.

This case is before the court following a trial held to determine the compensation, if any, owed to plaintiff under the Fifth Amendment to the United States Constitution for the taking of its property. In an earlier round of litigation in this case, the Court of Appeals for the Federal Circuit ruled that operating restrictions on plaintiff's water project imposed by the National Marine Fisheries Service ("NMFS") pursuant to the Endangered Species Act ("ESA"), 16 U.S.C. §§ 1531–44 (2006), should be analyzed as a physical taking where plaintiff was required to reroute a portion of the water it had diverted for its own use through a fish passageway and thus return the water to the river channel. Casitas Mun. Water Dist. v. United States, 543 F.3d 1276, 1295 (Fed. Cir. 2008), reh'g and reh'g en banc denied, 556 F.3d 1329 (Fed. Cir. 2009). In so holding, the Federal Circuit reversed a decision by this court in which we had ruled that such a restriction on water use constituted a regulatory taking of plaintiff's property. Casitas Mun. Water Dist. v. United States, 76 Fed. Cl. 100 (2007).

The court must now address two issues: first, the nature of plaintiff's property right and the extent to which background principles of state law impose limitations on that right,[2] and second, the appropriate method for calculating potential

[2] Although an examination of the nature of a claimant's property interest is generally a threshold inquiry in a takings case, that issue was not addressed as part of the earlier proceedings before this court. At defendant's request, the court focused instead on what defendant believed to be a dispositive legal issue: whether the government's actions constituted a physical taking (as plaintiff contended) or a regulatory taking (as defendant contended). In order to achieve a prompt resolution of that issue, defendant conceded for the limited purposes of summary judgment that plaintiff possesses a property right in the water for which it was seeking compensation. That concession is now behind us; we thus start this opinion with the question of whether plaintiff indeed possesses a compensable property interest in the lost water. See generally Begnaud v. White, 170 F.2d 323, 327 (6th Cir. 1948) (observing that when a party concedes certain contentions of its opponent for the purposes of a motion for summary judgment and that motion is overruled, "the (continued...)

damages, in particular by determining the quantity and value of the water lost. The parties submitted post-trial briefs on these issues and the court heard closing arguments on July 12, 2011. We address these issues in turn below.

BACKGROUND

Plaintiff, Casitas Municipal Water District ("Casitas"), operates the Ventura River Project, a water project that provides water to residential, industrial, and agricultural customers in Ventura County, California, a community located on the southern coast of California, approximately 60 miles northwest of Los Angeles. Toward that end, plaintiff operates the Robles Diversion Dam, a structure used to divert water from the Ventura River into the Robles-Casitas Canal, a 4.5 mile canal which in turn transports the water to a man-made reservoir known as Lake Casitas. Water is stored in Lake Casitas for delivery to plaintiff's customers.

Plaintiff's diversion and use of water is governed by a license granted to it by the State Water Resources Control Board ("SWRCB" or "the Board"), the California agency responsible for the issuance of permits and licenses for the appropriation of water in California. Cal. Water Code §§ 1225, 1250. In particular, plaintiff's license provides that plaintiff may divert up to 107,800 acre-feet of water per year from the Ventura River and other tributaries and may put up to 28,500 acre-feet of water per year to beneficial use. In addition, plaintiff's operations were originally governed by a set of guidelines, established in 1959 ("the 1959 criteria"), which required plaintiff to bypass the first 20 cubic feet per second ("cfs") of river flow for use by downstream senior water-rights holders before diverting any water from the Ventura River. Flows in excess of 20 cfs could be diverted into the Robles-Casitas Canal, subject to the provisions of plaintiff's license.[3]

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[2](...continued)
concession is no longer effective" and does not "continue[] over" for the purposes of further proceedings); Clearmeadow Inv., LLC v. United States, 87 Fed. Cl. 509, 529 (2009) (noting that "[p]rocedurally speaking, a party may concede a fact for purposes of its own summary judgment motion and yet reserve the right to litigate that fact should its motion be overruled.").

[3] Although Casitas can divert up to 1,000 acre-feet of water per day when operating at full capacity, the Ventura riverbed is dry for much of the year, enabling plaintiff to divert water only when sufficient rainfall occurs (primarily during the winter "wet season" of November through March) to fill the river basin while still allowing plaintiff to meet downstream release criteria for other water-rights holders. Such diversions have occurred, on average, fewer than 100 days per year.

Casitas operated under the terms of its license from the completion of the water project in 1959 until the late 1990s. In August 1997, however, NMFS, a federal agency, listed the west coast steelhead trout as an endangered species under the ESA, concluding in the final listing that the primary cause of the decline of the southern California steelhead is "extensive loss of steelhead habitat due to water development, including impassable dams and dewatering." 62 Fed. Reg. 43,949 (Aug. 18, 1997). As a result of this listing, Casitas, its officers, and the United States Bureau of Reclamation ("BOR") (the federal agency that owns the water project) faced possible civil and criminal liability if the continued operation of the water project resulted in harm to the steelhead trout. 16 U.S.C. §§ 1538(a)(1), 1540(a), (b).

Following the NMFS listing, plaintiff joined several other local water agencies in commissioning a study by Entrix, Inc., a consulting firm specializing in environmental and endangered-species issues, to identify measures to mitigate the impact of the water project operations on the steelhead population. The resulting report, titled "Ventura River Steelhead Restoration and Recovery Plan," concluded in part that "[p]roviding access to habitats upstream of Robles Diversion is one of the most important actions that can be taken to improve steelhead populations in the Ventura River." The report continued:

> The best long-term passage can probably be provided by (1) constructing a fish ladder at Robles Diversion, (2) installing a fish collection/bypass facility in the canal, and (3) perhaps maintaining a low flow passage channel from the live stretch (Foster Park) to Robles Diversion to assist fish in low flow years.

On December 18, 1997, plaintiff submitted a grant application to the California Department of Fish and Game ("CDFG"), seeking funds to construct a fish passage facility at the Robles Diversion Dam to lessen the impact of its operations on the steelhead. In its proposal, plaintiff observed that the estimated population of steelhead spawning in the Ventura River system had declined from 4,000–5,000 in the 1940s (prior to the construction of the Robles Diversion Dam) to possibly fewer than 100 fish in the late 1990s. Plaintiff went on to explain that "[p]roviding a fishway at the Robles Diversion Dam would restore access to [the steelheads'] habitat and would substantially increase the current population size." In addition, plaintiff noted that CDFG itself had concluded in a February 1996 report that "[r]estoring steelhead runs in this river will be crucial to restoring southern steelhead stocks" and that recovering those stocks "will be the highest priority for [CDFG] steelhead management."[4]

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[4] Casitas ultimately received $4.25 million in grant funding toward the approximately $9.5 million total construction cost of the fish passage facility: a (continued...)

On December 18, 1998, California Trout, Inc. ("Cal Trout"), a non-profit environmental group, notified plaintiff of its intention to bring suit in California district court in an attempt to enjoin Casitas and BOR from unlawfully taking, jeopardizing, and failing to conserve the steelhead trout through the operation of the Robles Diversion facility.[5] Specifically, Cal Trout asserted that plaintiff's operation of the Robles Diversion Dam and its related diversion and storage facilities had "caused the take" of endangered southern California steelhead in violation of the ESA by:

1. Operating the Robles Diversion without a fish ladder or other adequate means of fish passage, thereby preventing the unimpeded upstream migration and spawning of adult steelhead;

2. Diverting waters from the Ventura River to Casitas Lake at the Robles Diversion without any fish screens to prevent the capture and entrainment of downstream migrating smolts and adults steelhead;

3. Diverting waters from the Ventura River without adequate bypass flows below the Robles Diversion Dam to: (a) prevent direct death and injury to steelhead and (b) maintain habitat adequate to prevent indirect harm and to ensure the continued survival and recovery of steelhead in the Ventura River.

In a January 11, 1999, response, Casitas requested that Cal Trout delay the filing of suit pending the completion of a Habitat Conservation Plan ("HCP") that Casitas was developing with seven other local water agencies.[6] Casitas also invited

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[4](...continued)
$1.75 million grant from the State Coastal Conservancy on April 10, 2002; a $1.5 million grant from CDFG on May 16, 2002; and an additional $1 million grant from CDFG on May 26, 2004. Casitas received a third grant in the amount of $750,000 from CDFG but was required to return the money when the water project failed to obtain the necessary permits.

[5] The Endangered Species Act authorizes citizens to bring suit against alleged violators of the ESA, but provides that notice of such an action must be given to the alleged violators and to the Secretary of Commerce at least 60 days before any suit is filed. 16 U.S.C. §1540(g).

[6] A Habitat Conservation Plan is one aspect of a Section 10 consultation, a (continued...)

Cal Trout to participate in the HCP process. By letter dated January 28, 1999, Cal Trout agreed to participate in the HCP process but declined to delay litigation given "the precarious condition of the few steelhead remaining in the Ventura River and the fact that the steelhead spawning season is rapidly approaching." Cal Trout additionally demanded that interim measures be taken at once to protect the steelhead, including the providing of permanent fish passage and the suspending of diversions until a permanent fish screen could be constructed, no later than December 31, 2000.

In a February 2, 1999, interoffice memorandum, the general manager of Casitas recommended to Casitas's board of directors that Casitas take the following actions in response to Cal Trout's letter: (1) avoid diversions at the Robles Diversion Dam until January 1, 2000; (2) seek a consultation with NMFS and BOR under Section 7 of the ESA;[7] (3) undertake review of the project pursuant to the California Environmental Quality Act ("CEQA") and the National Environmental Policy Act ("NEPA"); (4) develop a Request for Proposal ("RFP") for the design and construction of a fish ladder and fish screen at the Robles Diversion Dam; and (5) continue with the HCP process.

On February 10, 1999, plaintiff's board of directors approved all but one of the general manager's recommendations, authorizing Casitas to seek a Section 7 consultation with NMFS, undertake CEQA and NEPA review, develop an RFP for

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[6](...continued)
process identified in the ESA that allows an applicant to obtain an incidental take permit from NMFS to absolve it of responsibility for the taking of a listed species so long as the taking is "incidental to . . . an otherwise lawful activity." 16 U.S.C. § 1539(a)(1)(B). Pursuant to Section 10, an applicant must submit a Habitat Conservation Plan that specifies: (1) the impact of the taking; (2) mitigation measures to minimize the impact; (3) the funding available to implement the measures; (4) procedures to deal with unforeseen circumstances; (5) alternative actions considered and the reason such actions are not proposed; and (6) other measures that NMFS may require. 16 U.S.C. § 1539(a)(2)(A).

[7] A Section 7 consultation is an alternative to the procedures set forth in Section 10 that calls for the informal and formal coordination between a federal agency (here BOR) and NMFS to address endangered species issues under the ESA. 16 U.S.C. § 1536(a)(2). The Section 7 consultation must be initiated by the federal agency and requires that the agency submit a biological assessment evaluating the impact of its operations on a listed species. 16 U.S.C. § 1536(c). NMFS is in turn required to issue a biological opinion determining whether the ongoing or proposed activities are likely to jeopardize the continued existence of the listed species. 16 U.S.C. § 1536(b).

a fish ladder and screen, and continue with the HCP process. The board declined, however, to cease diversions at the Robles Diversion Dam.

Plaintiff accordingly contacted BOR to request that the agency initiate a Section 7 consultation with NMFS and further contracted with the environmental consulting firm Borcalli & Associates, Inc., to assist in the design of a fish passage facility. In addition, plaintiff notified Cal Trout of its intention to proceed immediately with the Section 7 consultation and with the design and construction of a fishway. Casitas ultimately received notice that Cal Trout would delay the filing of suit on those grounds.

On September 1, 1999, Borcalli & Associates invited NMFS, CDFG, BOR, Casitas, Entrix, Cal Trout, the United States Fish and Wildlife Service, and the Army Corps of Engineers to participate in a Technical Advisory Group to discuss and guide the design of the fish passage facility. The resulting body met regularly over the next two years. Based on the group's discussions, BOR submitted several draft biological assessments to NMFS proposing the construction of a fish passage facility and identifying the minimum flow requirements necessary for successful fish migration.

NMFS issued a biological opinion on March 31, 2003. The biological opinion concluded that the proposal set forth in the final biological assessment—the construction and operation of the Robles fish passage facility—would not jeopardize the continued existence of the steelhead, but might result in the incidental take of the fish. The biological opinion accordingly included an incidental take statement relieving Casitas and BOR of liability under Section 7(o)(2) of the ESA so long as those agencies implemented a set of nondiscretionary, reasonable and prudent measures designed to minimize the incidental take of the steelhead. 16 U.S.C. §§ 1539(a)(1)(B), (a)(2)(A).

The biological opinion additionally called for a flow regime, referred to as the Robles Operating Criteria or biological opinion criteria, that increased the amount of water to be bypassed by plaintiff during steelhead migration periods to maintain an adequate water flow in the Ventura River for fish passage to upstream spawning sites. Under the new criteria, plaintiff was required during the fish passage augmentation season (January 1 to June 30 each year) to maintain downstream flows at or above 50 cfs during the first ten days of each migratory storm event (i.e., storms generating flows of 150 cfs or greater) and to maintain flows at 30 cfs in between storm events as long as incoming flows at the Robles Diversion Dam exceeded 30 cfs.[8] The biological opinion additionally specified that operations outside the fish

[8] Specifically, the biological opinion provided as follows:

(continued...)

passage augmentation season were to revert to the historic 1959 criteria, meaning that flows of up to 20 cfs would generally be released downstream.

Although this flow regime increased the amount of water plaintiff was required to bypass during certain portions of the year from 20 cfs under the 1959 criteria to 50 cfs under the biological opinion criteria (thereby limiting the amount of water plaintiff otherwise would have been permitted to divert), the biological opinion indicated as follows:

> Reservoir protection measures have been developed to ensure that fish operations at the Robles facility "minimize" effects on Lake Casitas water storage during a critical long-term drought period (i.e., a drought period in which Casitas implements conservation measures as defined within their Water Efficiency and Allocation Program [WEAP]). The measures are designed to prevent storage from dropping below a critical level (17,000 [acre-feet]) and facilitate the re-filling of the reservoir should it drop to a level where increased water charges and reduced allocations are imposed upon Casitas water customers.

(Footnote omitted.) The biological opinion additionally provided that "the operations described in this section will be revisited at a time not sooner than five years after the initiation of fish passage operations."[9]

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[8](...continued)
Minimum fish migration flow: The *minimum* flow rate providing successful steelhead migration through the lower river is 50 cfs. Therefore, downstream released flows at the diversion must be maintained at or above 50 cfs during the first 10 days of each migratory storm event (i.e., storms generating flows 150 cfs or greater, as measured at the Robles Diversion). If the natural inflow at the diversion drops below 50 cfs during the first 10 days, then downstream flows will be ramped down as on Day 11 and 12 . . . in order to smoothly close the migration window.

Between storm flow: During the fish passage augmentation season, downstream flow releases between storm events will be maintained at 30 cfs as long as incoming flows at the diversion are greater than 30 cfs. The 30 cfs flow between storm events will commence following the initial storm event of the migration season.

[9] By agreement, the five-year review period is still underway. Once (continued...)

On April 9, 2003, Casitas's board of directors passed a resolution implementing the biological opinion. The resolution noted, however, that "Casitas understands that the Bureau of Reclamation will be sending Casitas a letter that requires Casitas to adhere to the provisions of the Biological Opinion" and that "Casitas is under a powerful coercive effect to move forward with the fish passage project."

Casitas formally opened the Robles fish passage facility on December 9, 2004, to prevent fish from entering the Robles-Casitas Canal by directing them instead into a fish passageway to the Ventura River. Despite this development, Cal Trout filed a complaint with the State Water Resources Control Board on December 31, 2004, seeking to amend Casitas's license to conform to the requirements of the biological opinion.

The SWRCB addressed Cal Trout's complaint in a letter dated July 28, 2005. Observing that "the requirements of state law may overlap with, but are not necessarily identical to, the requirements of the Endangered Species Act, pursuant to which the Biological Opinion was issued," the Board advised Cal Trout that it could not "ministerially amend Casitas's license to conform to the Biological Opinion" without conducting a hearing. The SWRCB acknowledged that reconsideration of the terms of Casitas's license "may be warranted because public trust uses do not appear to have been taken into account when the State Water Board first approved Casitas's water right application" and because the Board "approved Casitas's application for a water right permit before . . . Southern California steelhead trout were listed as an endangered species." The Board noted on the other hand, however, that "the fact that Casitas is subject to other regulatory requirements for protection of steelhead trout and has stated its intention of carrying out protective measures even if the State Water Board takes no action is a relevant consideration in deciding whether the State Water Board should initiate a public trust proceeding in this case." The Board concluded by requesting Cal Trout to "submit any existing scientific evidence that supports the fish passage, operating criteria, and other measures evaluated in the biological opinion" to assist the Board in determining whether to hold a hearing on Cal Trout's complaint.

While Cal Trout's petition was pending before the SWRCB, Casitas filed suit in this court on January 26, 2005, asserting that the United States, in imposing the biological opinion operating criteria, had breached plaintiff's contract with BOR for the construction and operation of the water project or, in the alternative, had taken

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[9](...continued)
sufficient data has been collected and analyzed, a management committee made up of representatives from BOR, CDFG, and Casitas will determine if changes should be made to long-term fish flow operations.

plaintiff's property without compensation in violation of the Fifth Amendment.[10] Plaintiff accordingly sought reimbursement of the approximately $9.5 million it had spent to construct the fish passage facility (under the contract theory) and just compensation for the water it had lost (under the takings theory).

On January 27, 2006, the SWRCB informed Cal Trout and Casitas that no hearing was necessary "at the present time" because "Casitas has stated that it intends to comply with the Biological Opinion" and no evidence exists "that the requirements of the public trust doctrine will not otherwise be met through Casitas' compliance with the bypass flows and other provisions of the Biological Opinion." The Board declined to dismiss the complaint, however, observing that Casitas's lawsuit before the United States Court of Federal Claims (i.e., the instant suit) "creates uncertainty concerning whether Casitas will continue to operate the project in accordance with the requirements of the current Biological Opinion." The Board therefore concluded that it would "hold the complaint in abeyance pending resolution of Casitas' U.S. Court of Federal Claims action."

On October 2, 2006, this court dismissed plaintiff's contract claim against the United States under the theory that even if the government had indeed breached its contract with Casitas, the sovereign acts doctrine applied, shielding the government from liability. Casitas Mun. Water Dist. v. United States, 72 Fed. Cl. 746, 755 (2006). We next turned to the question of whether the alleged taking was physical or regulatory in nature. In order to resolve that issue, defendant filed a summary judgment motion in which it accepted, for the purposes of the motion, plaintiff's characterization of its property right. Plaintiff in turn conceded that if the taking were found to be regulatory, plaintiff could not make its case.[11] This court ultimately ruled in defendant's favor, concluding that the alleged taking was regulatory because it involved the government's restraint on an owner's use of property rather than a government takeover of property (either by physical invasion or by directing the

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[10] As we noted in our earlier decision, Casitas's contract with BOR, commonly referred to as the "repayment contract," contemplated the expenditure by the United States of up to $30.9 million in construction costs for the Ventura River Project, which was to be repaid by plaintiff over a period of 40 years. Casitas Mun. Water Dist. v. United States, 72 Fed. Cl. 746, 747 (2006). The contract additionally specified that plaintiff would assume all operation and maintenance costs of the water project from the time of the project's completion.

[11] Such a result follows from the requirement that a plaintiff pursuing a regulatory takings claim must demonstrate a significant loss in value relative to the property's whole, see Penn Central Transp. Co. v. City of New York, 438 U.S. 104, 130–31 (1978), whereas no such limitation exists in the physical takings context, see Loretto v. Teleprompter Manhattan CATV Corp., 458 U.S. 419, 436 (1982).

property's use to its own needs). Casitas, 76 Fed. Cl. at 105–06. We accordingly dismissed plaintiff's takings claim.

On appeal, the Federal Circuit upheld our dismissal of plaintiff's contract claim, but reversed our dismissal of plaintiff's takings claim on the ground that the taking was physical rather than regulatory in nature. Casitas, 543 F.3d 1276. In explaining its conclusion, the Federal Circuit wrote as follows:

> [T]he government admissions make clear that the United States did not just require that water be left in the river, but instead physically caused Casitas to divert water away from the Robles-Casitas Canal and towards the fish ladder. Where the government plays an active role and physically appropriates property, the *per se* takings analysis applies.

Id. at 1295.

Defendant moved for a rehearing and rehearing en banc but the court denied its motion. Casitas, 556 F.3d 1329. The majority explained that the case, as it had been presented on appeal, constituted a physical taking because defendant had conceded for the purposes of summary judgment "(1) that Casitas had a property right in the water diverted from the Ventura River, and (2) that the government required Casitas to build and operate the fish ladder in such a way as to permanently appropriate water in which Casitas had the conceded property right." Id. at 1331. The court went on to point out, however, that:

> [b]ecause of the government's concession, the majority did not undertake to decide if, under California Law, there can be a right to divert water. Nor did we undertake to reach a factual conclusion about whether Casitas will experience a reduction in the amount of water that it can beneficially use. These concerns and others are undoubtedly critical to the ultimate outcome of Casitas' action, but they are not before us in this appeal.

Id. at 1331 n.1.

It is both the quantity and the value of this water—the water the Federal Circuit held was physically appropriated by the United States—that are now the focus of plaintiff's claim.

DISCUSSION

I.

At the heart of this case is a fundamental dispute over the nature and scope of plaintiff's property right. In the most basic terms, plaintiff believes that it is entitled to divert, store, and use water pursuant to the terms of its license and that it must be compensated for water that, as a result of the biological opinion, it was unable to divert. Defendant, by contrast, defines plaintiff's property interest more narrowly, arguing that plaintiff's only compensable right under California law is to the water it can beneficially use (and not to water it has merely diverted or stored), and only if that use complies with various state common-law doctrines. This core difference underpins the parties' respective approaches to both liability and damages.

Plaintiff identifies the property right for which it seeks compensation as "a portion of Casitas' water right (specifically, 3,492 acre-feet) granted by the State of California, to divert up to 107,800 acre-feet per year and put 28,500 acre-feet per year to beneficial use," as set forth in its water license issued by the SWRCB. Plaintiff's position is grounded on the premise that the SWRCB "defines the scope of the license, and accordingly, the scope of the water right, and the State Water Board has never limited the scope of that right to require water for a fish passage. Indeed, the State Water Board has expressly refused to do so." In the absence of such an action by the Board, plaintiff maintains that it has a right to continue to operate according to the terms of its license—a right, plaintiff contends, the federal government has now taken.

Defendant, by contrast, argues that plaintiff's property right is to the beneficial use of the water only, subject to the additional limitation that such use must not violate California's public trust doctrine, its reasonable use doctrine, or that portion of the California Fish and Game Code—Section 5937—that requires dam owners to operate their projects in such a way as to keep downstream fish in good condition. In defendant's view, no taking has occurred because (1) the operating restrictions have not affected Casitas's beneficial use of the water (Casitas has thus far met all of its customers' needs and, according to defendant, is projected to do so in the future), and (2) Casitas does not, in any event, have a right under California law to use water in a manner that is harmful to the fish. In the alternative, defendant argues that even if plaintiff is found to possess a compensable property right to the lost water, the amount foregone was surplus to Casitas's water needs and is consequently of little value.

In resolving these issues, we must begin our analysis, as the Supreme Court instructs, by defining the nature of the asserted property right. Lucas v. S.C. Coastal Council, 505 U.S. 1003, 1027 (1992). In particular, the court must determine whether plaintiff in fact possesses the property right in question, i.e., whether the

asserted right is within the bundle of sticks comprising ownership. M&J Coal Co. v. United States, 47 F.3d 1148, 1154 (Fed. Cir. 1995) (observing that the court should first inquire into the nature of the owner's property interest "to determine whether the use interest proscribed by the governmental action was part of the owner's title to begin with, i.e., whether [that] use interest was a 'stick in the bundle of property rights' acquired by the owner") (quoting Lucas, 505 U.S. at 1027). This is so whether the governmental action is characterized as a physical taking or a regulatory taking. John R. Sand & Gravel Co. v. United States, 60 Fed. Cl. 230, 239 (2004).

A court's determination of which sticks are in the bundle of rights associated with a claimed property interest requires careful examination of the "existing rules or understandings" or "background principles" that define the scope of the right in question. See Lucas, 505 U.S. at 1029; Board of Regents v. Roth, 408 U.S. 564, 577 (1972). As the Lucas Court explained:

> Where the State seeks to sustain regulation that deprives land of all economically beneficial use, we think it may resist compensation only if the logically antecedent inquiry into the nature of the owner's estate shows that the proscribed use interests were not part of his title to begin with. This accords, we think, with our "takings" jurisprudence, which has traditionally been guided by the understandings of our citizens regarding the content of, and the State's power over, the "bundle of rights" that they acquire when they obtain title to property.
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> . . . We believe similar treatment must be accorded confiscatory regulations, i.e., regulations that prohibit all economically beneficial use of land: Any limitation so severe cannot be newly legislated or decreed (without compensation), but must inhere in the title itself, in the restrictions that background principles of the State's law of property and nuisance already place upon land ownership. A law or decree with such an effect must, in other words, do no more than duplicate the result that could have been achieved in the courts—by adjacent landowners (or other uniquely affected persons) under the State's law of private nuisance, or by the State under its complementary power to abate nuisances that affect the public generally, or otherwise.

Id. at 1027, 1029 (footnote omitted). The determination of whether background principles of state law inhere in a plaintiff's title and limit the uses to which the plaintiff can put its property is a multi-step process. John R. Sand, 60 Fed. Cl. at

240. First, plaintiff must demonstrate that it possesses a property interest; second, defendant must identify background principles of state property or nuisance law that would limit plaintiff's proposed use of that property; and third, defendant must connect the state law to the facts of the case to demonstrate that the government's action does no more than duplicate the result that could have been achieved in the courts under background principles of state law. Id. Only on this showing, can defendant succeed in its defense that it owes no compensation for physically taking a portion of plaintiff's water supply.

A. The Nature of Plaintiff's Property Right

In defendant's view, Casitas does not have an absolute, unqualified right to divert a specific quantity of water at all times, nor does it have a possessory right to all of the water it diverts into its canal and later stores in its reservoir. Rather, defendant argues, Casitas has a compensable property interest under California law only in the amount of water it will put to beneficial use, regardless of the amount of water it may divert or store. Defendant maintains that Casitas therefore must show that the specific amount of water allegedly taken otherwise would have been put to beneficial use—i.e., would have been delivered to Casitas's customers. A potential, or even an actual, reduction in the amount of water stored at Lake Casitas, defendant contends, is not sufficient to establish the taking of a property right recognized under California law.

Plaintiff, by contrast, argues that it possesses a right under its water license to divert up to 107,800 acre-feet of water annually and that this right is integral to its ability to meet its customers' needs. As a consequence, plaintiff focuses not on the effect of the operating restrictions on its beneficial use of the water, but rather on the effect of those restrictions on plaintiff's total water supply (including the water stored in Lake Casitas). The dispute between the parties, then, boils down to this: does California law recognize a right to divert independent of a right to beneficial use?

The answer, we believe, is no. Although it is true that Casitas's license clearly permits the water district to divert water (up to 107,800 acre-feet annually) and that the safe operation of the water project requires that more water be diverted annually than can be put to beneficial use, we do not read California law as recognizing a separate, independently compensable right to divert water.[12] We reach

[12] Traditionally, diversion and beneficial use have been construed as two aspects of perfecting an appropriative water right. As the court explained in California Trout, Inc. v. State Water Res. Control Bd., 90 Cal. App. 3d 816, 820 (1979) (quoting Wells A. Hutchins, The California Law of Water Rights 108 (1956)):

(continued...)

this conclusion for several reasons.

As an initial matter, it is well established under California law that all water in the state, including the water of the Ventura River, "is the property of the people of the State, but the right to the use of [that] water may be acquired by appropriation in the manner provided by law." Cal. Water Code § 102. California law therefore does not speak in terms of the ownership of water, but only of the right to its use. Cal. Water Code § 1001 ("Nothing in this division shall be construed as giving or confirming any right, title, or interest to or in the corpus of any water."); Allegretti & Co. v. County of Imperial, 138 Cal. App. 4th 1261, 1271 n.5 (2006) (observing that "[w]ater rights carry no specific property right in the corpus of the water itself."). Such rights have accordingly been described as "usufructuary," consisting "not so much of the fluid itself as the advantage of its use." Eddy v. Simpson, 3 Cal. 249, 252 (1853).

The focus in California water law, however, is not simply on use but on a concept referred to as beneficial use. The California Constitution sets out this principle as follows:

> It is hereby declared that because of the conditions prevailing in this State the general welfare requires that the water resources of the State be put to beneficial use to the fullest extent of which they are capable, and that the waste or unreasonable use or unreasonable method of use of water be prevented, and that the conservation of such waters is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare. The right to water or to the use or flow of water in or from any natural stream or

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[12](...continued)
To constitute a valid appropriation of water, three elements must always exist: (1) An intent to apply it to some existing or contemplated beneficial use; (2) an actual diversion from the natural channel by some mode sufficient for the purpose; and (3) an application of the water within a reasonable time to some beneficial use.

See also 1 Wells A. Hutchins, Water Rights Laws in the Nineteen Western States 157 (1971) (the appropriation doctrine "contemplates the acquisition of rights to the use of water by diverting water and applying it to reasonable beneficial use for a beneficial purpose"); A. Dan Tarlock, Law of Water Rights and Resources §§ 5:15, 5:16 (2011) (physical diversion and beneficial use are essential elements of a valid appropriation).

> water course in this State is and shall be limited to such water as shall be reasonably required for the beneficial use to be served, and such right does not and shall not extend to the waste or unreasonable use or unreasonable method of use or unreasonable method of diversion of water.

Cal. Const. art. 10, § 2; see also Cal. Water Code § 100 (adopting the constitutional language regarding beneficial use).

Pursuant to the terms of its license, Casitas's water right is "limited to the amount actually beneficially used for the stated purposes [municipal, domestic, irrigation, industrial, recreational, and standby emergency uses]."[13] That limitation is in keeping with California case law which recognizes the beneficial use doctrine as defining the limits of an appropriative water right. People v. Murrison, 101 Cal. App. 4th 349, 363 (2002) ("An appropriative right is limited to the amount of water the appropriator can put to a reasonable beneficial use and has put to beneficial use . . . .").[14] Indeed, as the above-quoted language from the California Constitution makes clear, water rights are limited to the amount necessary for the beneficial use to be served. Cal. Const. art. 10, § 2 ("The right to water or to the use or flow of water in or from any natural stream or water course in this State is and shall be

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[13] Casitas's license provides in relevant part as follows:

> [T]he amount of water to which this right is entitled and hereby confirmed is limited to the amount actually beneficially used for the stated purposes [municipal, domestic, irrigation, industrial, recreational and standby emergency uses] and shall not exceed thirty-three and six-tenths (33.6) cubic feet per second by direct diversion to be diverted from January 1 to December 31 of each year and one hundred one thousand (101,000) acre-feet per annum by storage to be collected from November 1 of each year to June 30 of the succeeding year. The total amount of water to be taken from the sources (direct diversion plus collection to storage) shall not exceed 107,800 acre-feet per year. The total amount of water to be placed to beneficial use (direct diversion plus withdrawal from storage) shall not exceed 28,500 acre-feet per year.

[14] The limitation is additionally consistent with the Reclamation Act of 1902—a congressional enactment applicable to federal reclamation projects such as the Ventura River Project—which provides that "beneficial use shall be the basis, the measure, and the limit of the right" to use water acquired under its provisions. 43 U.S.C. § 372; see also United States v. Clifford Matley Family Trust, 354 F.3d 1154, 1163 (9th Cir. 2004).

limited to such water as shall be reasonably required for the beneficial use to be served . . . ."); see also Cal. Water Code § 1240 (requiring that an appropriation "must be for some useful or beneficial purpose, and when the appropriator or his successor in interest ceases to use it for such a purpose the right ceases").

The Ninth Circuit has explained the general principle of beneficial use as follows:

> The major conceptual tool for implementing beneficial use is the water duty, which is the amount of water an appropriator is entitled to use, including a margin for conveyance loss. This definition of "water duty" is often quoted:
>
> > It is that measure of water, which, by careful management and use, without wastage, is reasonably required to be applied to any given tract of land for such period of time as may be adequate to produce therefrom a maximum amount of such crops as ordinarily are grown thereon. It is not a hard and fast unit of measurement but is variable according to conditions.

United States v. Alpine Land & Reservoir Co., 697 F.2d 851, 854 (9th Cir. 1983) (quoting Farmers Highline Canal & Reservoir Co. v. City of Golden, 272 P.2d 629, 634 (1954)); see also 62 Cal. Jur. 3d Water § 323 (defining beneficial use as "the amount actually used and reasonably necessary for a useful purpose to which the water has been applied") (relying on McKinney v. Smith, 21 Cal. 374 (1863)).

Notably for our purposes, beneficial use generally has not been found to include the diversion and storage of water. Lindblom v. Round Val. Water Co., 178 Cal. 450, 456, 173 P. 994, 997 (1918) (observing that the "[s]torage of water in a reservoir is not in itself a beneficial use" but is a "mere means to the end of applying the water to such use."); Meridian, Ltd. v. San Francisco, 13 Cal. 2d 424, 475–76, 90 P.2d 537, 562–63 (1939) (relying on Lindblom for same). "[T]he law only allows the appropriator the amount actually necessary for the useful or beneficial purpose to which he applies it," and the inquiry is therefore "not what he had used, but how much was actually necessary." California Pastoral Agric. Co. v. Madera Canal & Irrigation Co., 167 Cal. 78, 84, 138 P. 718, 721 (1914). As the California Supreme Court explained nearly one hundred years ago in Hufford v. Dye, 162 Cal. 147, 153, 121 P. 400, 403 (1912):

> It is the well-settled law of this state that one making an appropriation of the waters of a stream acquires no title to the waters but only a right to their beneficial use and only to the extent that they are employed for that purpose. His right is not measured by the extent of his appropriation, as stated in his notice or by his actual

diversion from the stream, but by the extent to which he applies such waters for useful or beneficial purposes.

Based on these precedents, we conclude that the only compensable right under California water law is a right to beneficial use. The holder of an appropriated water right, in other words, receives nothing more than this right to beneficial use and possesses no legal entitlement to water that is diverted but never beneficially used. Indeed, by the very terms of its water license, Casitas is limited to the beneficial use of 28,500 acre-feet of water per year. Accordingly, we hold that plaintiff must demonstrate an interference with that beneficial use in order to establish a Fifth Amendment taking of its property.

B. Limitations on Plaintiff's Property Right Under Lucas

Having determined that plaintiff possesses a property right to the beneficial use of the water identified in its water license, we turn next to the government's Lucas defense. At issue is whether the bypass-flow provisions of the biological opinion "do no more than duplicate the result that could have been achieved in the courts" under background principles of California water law. Lucas, 505 U.S. at 1029. The question, in other words, is whether the biological opinion's restrictions on Casitas's ability to divert water merely parallel and make explicit the restrictions that background principles of California water law already place upon Casitas's exercise of its water right and which "inhere in" the water right itself. Id.

Defendant maintains that such background principles exist in the form of several doctrines fundamental to California water law that are incorporated into plaintiff's license: the public trust doctrine, the reasonable use doctrine, and California Fish and Game Code Section 5937. Under the public trust doctrine, state agencies have the responsibility to protect trust resources associated with California's waterways, such as navigation, fisheries, recreation, ecological preservation, and related beneficial uses. National Audubon Soc'y v. Superior Court of Alpine Cnty., 33 Cal. 3d 419, 425–26, 658 P.2d 709, 712 (1983). Similarly, the reasonable use doctrine prohibits the waste, unreasonable use, unreasonable method of use, and unreasonable method of diversion of water. Cal. Const. art. 10, § 2; Cal. Water Code §§ 100, 275. Finally, California Fish and Game Code Section 5937 provides protection to fisheries by specifying that the owner of any dam must allow sufficient water to pass through the dam at all times to keep any fisheries that may be planted or exist below the dam "in good condition."[15] Defendant contends that these

[15] California Fish and Game Code Section 5937 provides in full as follows:

The owner of any dam shall allow sufficient water at all times to pass

(continued...)

principles inhere in Casitas's title, thereby limiting the use to which Casitas may put its water and shielding defendant from any takings liability under Lucas.

Plaintiff, for its part, does not dispute that its license is subject to the public trust doctrine, the doctrine of reasonable use, or California Fish and Game Code Section 5937. Plaintiff maintains, however, that water use that is consistent with the terms of Casitas's license and that has not been circumscribed in a proceeding either before the SWRCB or the California courts by definition complies with California law. What is significant to plaintiff, in other words, is not that the SWRCB could potentially find plaintiff's use in violation of those doctrines, but that it has not in fact already done so. Nor, plaintiff contends, can the government successfully invoke a Lucas defense where the governmental action was predicated on a federal statute—the Endangered Species Act—and not on the asserted principle of state law.

Defendant takes a similarly bright-line—albeit diametrically opposed—position, essentially arguing that Casitas's operations under the 1959 criteria, to the extent that they harm the fish, are in per se violation of California law. In defendant's view, plaintiff has no right under state law to divert water that is needed to avoid harm to the steelhead trout, and thus, a curtailment of plaintiff's operations that is consistent with those doctrines does not amount to a taking. In support of this position, defendant refers us to National Audubon, 33 Cal. 3d 419, 658 P.2d 709, a decision by the California Supreme Court addressing the interplay between California's appropriative water rights system and the public trust doctrine. That case, according to defendant, stands for the proposition that the state has the power to grant nonvested usufructuary rights to appropriate water, but that no one under state law may acquire a vested right to appropriate water in a manner harmful to the public trust. Id. at 445, 658 P.2d at 727. Nor, in defendant's view, can anyone obtain a property right under California law to an unreasonable use of water. Joslin v. Marin Mun. Water Dist., 67 Cal. 2d 132, 145, 429 P.2d 889, 898 (1967). Defendant thus sees its burden as a deceptively simple one: if it can show that Casitas's operations under the 1959 criteria were harmful to the fish, then it will

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[15](...continued)

through a fishway, or in the absence of a fishway, allow sufficient water to pass over, around or through the dam, to keep in good condition any fish that may be planted or exist below the dam. During the minimum flow of water in any river or stream, permission may be granted by the department to the owner of any dam to allow sufficient water to pass through a culvert, waste gate, or over or around the dam, to keep in good condition any fish that may be planted or exist below the dam, when, in the judgment of the department, it is impracticable or detrimental to the owner to pass the water through the fishway.

defeat plaintiff's takings claim because the right to harm fish was not part of Casitas's title from the start.

We cannot accept either party's position. As an initial matter, we must reject plaintiff's assertion that in the absence of a contrary finding by the SWRCB or the California courts, water use that complies with the terms of Casitas's license is necessarily consistent with California law. The public trust and reasonable use doctrines are self executing, as well as evolving, and do not therefore lend themselves to such a static interpretation. See, e.g., Cal. Const. art. 10, § 2 (describing the principles of beneficial use and reasonableness as "self-executing"); State Water Res. Control Bd. v. Forni, 54 Cal. App. 3d 743, 750 (1976) (observing that "[w]hat is a [reasonable and] beneficial use at one time may, because of changed conditions, become a waste of water at a later time") (quoting Tulare Dist. v. Lindsay-Strathmore Dist., 3 Cal. 2d 489, 567, 45 P.2d 972, 1007 (1935)). In addition, Lucas makes clear that the consideration of such background principles of state law is an antecedent inquiry in a takings analysis, one this court is charged with conducting. Lucas, 505 U.S. at 1027; see also Erie R.R. Co. v. Tompkins, 304 U.S. 64, 79 (1938) (recognizing the authority of federal courts to address questions of state law). The California Supreme Court has in fact explicitly recognized that federal courts have the authority and responsibility to apply the public trust doctrine. National Audubon, 33 Cal. 3d 419 at 426, 658 P.2d at 713 (observing that federal courts and the SWRCB have concurrent jurisdiction to apply and enforce the public trust doctrine as to particular water rights). It is therefore no answer for plaintiff to say that neither the SWRCB nor the California courts have found its water use unreasonable or in violation of the public trust; that is precisely the inquiry now confronting this court.

Nor can we accept plaintiff's assertion that the governmental action itself must be based on the asserted background principle of state law in order for a Lucas defense to apply. Plaintiff bases this argument on its reading of Palm Beach Isles Assocs. v. United States, 208 F.3d 1374 (Fed. Cir. 2000), a decision involving an asserted taking of real property as the result of a wetlands permit denial. Although the permit denial was based on environmental grounds and on the federal Clean Water Act, 33 U.S.C. §§ 1251–1376, the government claimed that it was immune from any takings liability under a navigational servitude background principle. Id. at 1384. The Federal Circuit rejected the government's argument, noting that "it is clear that in order to assert a defense under the navigational servitude, the Government must show that the regulatory imposition was for a purpose related to navigation; absent such a showing, it will have failed to 'identify background principles . . . that prohibit the uses [the landowner] now intends.'" Id. at 1385 (quoting Lucas, 505 U.S. at 1031).

We do not, however, read Palm Beach Isles as standing for the proposition that defendant must prove that the challenged property restriction was in fact predicated upon the asserted background principle of law to succeed in its

Lucas defense. Rather, we see Palm Beach Isles as requiring an identity of purpose between the action taken by the federal government and the background principle on which the government later relies. Where, as here, both the government's action and the background principle of law are concerned with the same issue—the preservation of fish and wildlife—Palm Beach Isles provides no obstacle to the government's defense.

Defendant's arguments are equally unavailing. First, we do not read National Audubon as standing for the proposition that water rights in California are beyond the protection of the Fifth Amendment. In National Audubon, various environmental organizations brought suit seeking to enjoin the Department of Water and Power for the city of Los Angeles ("DWP") from diverting all of the stream flow that supplied water to the Mono Lake basin, maintaining that the challenged diversion violated the public trust by harming fish, wildlife, and recreational resources in Mono Lake. 33 Cal. 3d at 425, 658 P.2d at 712. Despite the fact that the diversions were authorized by a license issued by the SWRCB, plaintiff nevertheless argued that "the public trust is antecedent to and thus limits all appropriative water rights." Id. at 445, 658 P.2d at 727. DWP argued in response that the public trust doctrine was instead "'subsumed' into the appropriative water rights system," and hence that under its water license, it had "a vested right in perpetuity to take water without concern for the consequences to the trust." Id. The California Supreme Court was thus called upon to reconcile two central systems of legal thought: California's appropriative water rights system and its public trust doctrine.

The court sought a middle ground between the parties' positions, acknowledging the importance of both the public trust doctrine and the appropriative water rights system as follows:

> In our opinion, both the public trust doctrine and the water rights system embody important precepts which make the law more responsive to the diverse needs and interests involved in the planning and allocation of water resources. To embrace one system of thought and reject the other would lead to an unbalanced structure, one which would either decry as a breach of trust appropriations essential to the economic development of this state, or deny any duty to protect or even consider the values promoted by the public trust.

Id. Seeking, then, to avoid a "collision course" between the two water regimes, the National Audubon court endorsed aspects of both the appropriative water rights system and the public trust doctrine. Id. at 425, 658 P.2d at 712. In support of the public trust doctrine, the court held that the state as sovereign retains "continuing supervisory control" over rights to flowing waters, id. at 445, 658 P.2d at 727, and that the state's authority to maintain continuous supervision over the navigable waters bars "any . . . party from claiming a vested right to divert waters once it

becomes clear that such diversions harm the interests protected by the public trust," id. at 425–26, 658 P.2d at 712.[16] In support of the appropriative water rights system, the court in turn held that the state, as a matter of necessity, must have "the power to grant usufructuary licenses that will permit an appropriator to take water from flowing streams and use that water in a distant part of the state, even though this taking does not promote, and may unavoidably harm, the trust uses at the source stream." Id. at 446, 658 P.2d at 727. In so ruling, the National Audubon court attempted to "integrate the teachings and values" of the two systems of legal thought. Id. at 425, 658 P.2d at 712.

Defendant relies on National Audubon for the proposition that the SWRCB may grant an applicant an interest enforceable against other competing water users, but does not create a vested entitlement against the public in the event that the exercise of that water right is found to harm public trust resources. Defendant thus distinguishes between uses that are merely authorized by the SWRCB (as it claims is the case here) and uses that are vested (and thus compensable under the Fifth Amendment). The former, in defendant's view, can never ripen into a vested right and may be revoked at any time.

The difficulty we have with defendant's position is that it is essentially the same argument that was presented—and rejected—in National Audubon itself. Like the plaintiffs' position in National Audubon, defendant's argument in this case appears to be that the public trust doctrine has primacy over California's appropriative water rights system. We read National Audubon, however, as recognizing that the state has a right—indeed a duty—to exercise continuing supervisory control over its navigable waters to protect the public trust, but that the traditional water rights system—with its recognition and protection of water rights as property—remains in place. Understood in this context, the term "nonvested" as used by the National Audubon court must be seen as a reaction to and a rejection of the DWP's assertion that it possesses a vested right in perpetuity to take water

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[16] Indeed, the National Audubon court echoed this sentiment throughout its decision, making repeated use of the term "vested" as a limitation on the exercise of water rights found to harm interests protected by the public trust. See, e.g., id. at 437, 658 P.2d at 721 ("parties acquiring rights in trust property generally hold those rights subject to the trust, and can assert no vested right to use those rights in a manner harmful to the trust"); id. at 445, 658 P.2d at 727 (the public trust doctrine "prevents any party from acquiring a vested right to appropriate water in a manner harmful to the interests protected by the public trust"); id. at 447, 658 P.2d at 729 ("It is clear that some responsible body ought to reconsider the allocation of the waters of the Mono Basin. No vested rights bar such reconsideration.") (footnote omitted); id. at 452, 658 P.2d at 732 (the public trust doctrine "precludes anyone from acquiring a vested right to harm the public trust").

without concern for the consequences to the trust, given the state's responsibility to revisit water allocations in the face of changing public trust needs. That term does not, however, mean that appropriative water rights are exempt from Fifth Amendment compensation when taken by the federal government. As the California courts have repeatedly held, it is "axiomatic that once rights to use water are acquired, they become vested property rights. As such, they cannot be infringed by others or taken by governmental action without due process and just compensation." United States v. State Water Res. Control Bd., 182 Cal. App. 3d 82, 101 (1986).

Nor do we accept defendant's assertion that harm to fish, as an absolute, is necessarily violative of California law. In mounting a background principles defense under Lucas, defendant is required to "do more than proffer the legislature's declaration that the uses [plaintiff] desires are inconsistent with the public interest, or the conclusory assertion that they violate a common-law maxim such as *sic utere tuo ut alienum non laedas* [so use your own as not to injure another's property]." Lucas, 505 U.S. at 1031. We are unable to say, as defendant would have us do, that a mere showing of harm to the fish, without regard to the magnitude of the harm or the effect of the restriction on plaintiff, is sufficient to take the claim outside the protections of the Fifth Amendment. The logical extension of defendant's argument is that water rights in California are not protected by the Fifth Amendment and may be taken by the federal government with impunity so long as it asserts under Lucas that someone, somewhere, could have made a showing that harm was being done to the fish. Notably, there would be no limit to that principle, a principle that would eviscerate private property interests and throw the water rights regime into chaos. That cannot be—and indeed is not—the law.

The fundamental premise underlying all of the doctrines upon which defendant relies is that water is a tremendously valuable resource in California and that it is the continuing duty of the state to ensure that the water is best used to meet the needs of the state and of the people as a whole. Colberg, Inc. v. State, 67 Cal. 2d 408, 416, 432 P.2d 3, 8–9 (1967) (recognizing the state's role as the "trustee of a public trust for the benefit of the people"); Sawyer v. Board of Supervisors of Napa County, 108 Cal. App. 446, 452, 291 P. 892, 895 (1930) (expressing "the policy of the state to conserve the waters thereof, and to put same to highest possible use"). Implementation of the public trust doctrine requires not only the balancing of the various public trust values, but also the weighing of those values against other, broader public interests. National Audubon, 33 Cal. 3d at 446–47, 658 P.2d at 728 (holding that "the state must . . . consider the effect of the taking on the public trust and . . . preserve, so far as consistent with the public interest, the uses protected by the trust") (citation omitted); Cal. Water Code § 1253. Notably, the public trust doctrine is concerned not only with fish and other environmental values, but also with human navigation and commerce. Marks v. Whitney, 6 Cal. 3d 251, 259–61, 491 P.2d 374, 380–81 (1971). Indeed, even under National Audubon, the state has an affirmative duty to protect public trust uses only when "feasible." 33 Cal. 3d at

425–26, 658 P.2d at 712 (requiring state courts and agencies to "attempt, so far as feasible, to avoid or minimize any harm to [public trust] interests.")

Similarly, in determining whether a particular water use is reasonable, the California Constitution requires a balancing and consideration of all interests. Cal. Const. art. 10, § 2; see also Cal. Water Code § 100.5 (the reasonableness rule itself requires a consideration of all circumstances); United States v. State Water Res. Control Bd., 182 Cal. App. 3d at 129 (a "determination of reasonable use depends upon the totality of the circumstances presented"); Environmental Def. Fund, Inc. v. East Bay Mun. Util. Dist., 26 Cal. 3d 183, 194, 605 P.2d 1, 6 (1980) ("what is a reasonable use of water depends upon the circumstances of each case, such an inquiry cannot be resolved in vacuo from statewide considerations of transcendent importance") (quoting Joslin, 67 Cal. 2d at 140, 429 P.2d at 894). Our analysis of the public trust and reasonable use doctrines therefore must take into account not only the relevant environmental concerns, but also the beneficial uses served by Casitas's operations, the longevity and history of those operations, and the state policy favoring delivery and use of domestic water. Cal. Water Code §§ 106, 1254 (declaring it to be "the established policy of this State that the use of water for domestic purposes is the highest use of water").

Defendant has convincingly shown that the steelhead trout are a public trust resource and that the state of California is concerned with their preservation. In addition, a case certainly can be made for the proposition that Casitas's operations under the 1959 criteria were causing the steelhead harm.[17] What defendant has failed

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[17] For the purposes of our discussion, we assume—but do not hold—that Casitas's operations were the cause of the steelheads' decline and that the bypass flows identified in the biological opinion are the minimum necessary to provide successful steelhead migration. Casitas challenges both assertions but was not permitted to submit evidence on these points at trial because we ruled that plaintiff is bound to accept the correctness of the government action (here the biological opinion) in all respects in order to pursue a takings claim in this court. Order Memorializing Rulings on Motions in Limine (Oct. 5, 2010); see also Tabb Lakes, Ltd. v. United States, 10 F.3d 796, 802 (Fed. Cir. 1993) (holding that a plaintiff "must concede the validity of the government action which is the basis of the taking claim"). As we explained in connection with our ruling on defendant's motion in limine, a challenge to the correctness of the biological opinion should have been pursued in district court. Transcript of Oral Argument at 40–42 (Oct. 4, 2010) (relying on Florida Rock Indus., Inc. v. United States, 791 F.2d 893, 898, 905 (Fed. Cir. 1986) (observing that because the "proper way to challenge the [government action] would be under the Administrative Procedure Act," the "alleged taker had a right, in the Claims Court, to have the claim assessed on the basis that its (continued...)

to do, however, is show that it is in the public's interest to rededicate water previously intended for domestic and agricultural purposes to serve the needs of the fish.

The first point—that the steelhead trout are a public trust resource and that the state of California is concerned with their preservation—is beyond dispute. Defendant demonstrated at trial that the California legislature has long been concerned about the decline of water-dependent fish and wildlife resources in the state and about the decline of steelhead trout, salmon, and other anadromous fisheries in particular. In 1985, for example, the California legislature declared that "[f]ish and wildlife have been adversely affected by water developments that have significantly altered water flows in many of California's rivers and streams, thereby affecting fish and wildlife, their habitat, adjacent riparian habitat, spawning areas, and migration routes." Cal. Fish & Game Code § 2761(b). The legislature identified fish and wildlife as "important public resources" and indicated that the state "intends to make reasonable efforts to prevent further decline in fish and wildlife, to restore fish and wildlife to historic levels where possible, and to enhance fish and wildlife resources where possible." Id. §§ 2761(c), (d); see also id. §§ 2050–55 (the California Endangered Species Act). Three years later, the legislature enacted the Salmon, Steelhead Trout, and Anadromous Fisheries Program Act of 1988, declaring that "[i]t is the policy of the state to significantly increase the natural production of salmon and steelhead trout by the end of this century." Id. § 6902(a).

In response to this legislative mandate, CDFG, the state agency charged with protecting the steelhead, prepared and issued its "Steelhead Restoration and Management Plan for California," naming the southern California steelhead as "the

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[17](...continued)
regulatory action was valid and correct in all respects")).

In analyzing defendant's background principles defense, however, we are again faced with the question of whether plaintiff's operations under the 1959 criteria were indeed harmful to the fish. (Background principles of state law would presumably not foreclose plaintiff's operations under the 1959 criteria if those operations were shown as a matter of scientific fact not to pose harm to the steelhead.) We offer no opinion as to whether the findings set forth in the biological opinion are sufficient, standing alone, to establish that harm. But we believe that if the case were to turn on this issue, plaintiff at some point must be given the opportunity to present evidence that Casitas's operations were not in fact the cause of the steelheads' decline and that bypass flows less than those identified in the biological opinion would be sufficient to facilitate the migration of the fish. We need not resolve these issues, however, because even assuming the existence of such harm, we conclude that defendant has not succeeded in its Lucas defense.

most jeopardized of all of California's steelhead populations," and identifying instream flow depletion as "a major cause for the current decline of steelhead." In particular, the plan found that the "[i]nstallation of a fish passage facility at the Robles Diversion Dam is key to rehabilitating steelhead runs in the Ventura River system" and concluded that "[r]estoring steelhead runs in this river will be crucial to restoring southern steelhead stocks." The plan indicated that recovering these stocks from impending extinction "will be the highest priority for [CDFG] Steelhead Management."

In support of the goals set forth in the Steelhead Restoration Plan, CDFG awarded plaintiff multiple grants to construct a fish passageway, conditioning those awards on the provision of adequate bypass flows "to keep migrating and rearing adult and juvenile steelhead below Robles Diversion Dam in good condition."[18] CDFG additionally participated in the ESA Section 7 consultation process between NMFS, BOR, and Casitas, notifying NMFS in a February 21, 2003, letter that it concurred with NMFS's recommended measures for critical drought protection for Lake Casitas, and subsequently informing plaintiff that it "agrees with, and fully supports, the Biological Opinion issued in March 31, 2003." These facts, we believe, convincingly establish both that the steelhead are a public trust resource and that the state of California is concerned with their preservation.

But that showing alone is not enough. As the National Audubon court recognized,"[t]he population and economy of [California] depend upon the appropriation of vast quantities of water for uses unrelated to in-stream trust values" and thus, "[a]s a matter of current and historical necessity," the state "has the power to grant usufructuary licenses that will permit an appropriator to take water from

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[18] In an August 26, 2002, letter to plaintiff and BOR, CDFG described itself as having made "extraordinary efforts" on behalf of Casitas's fish passageway project because of the project's "prominent place" in CDFG's Steelhead Restoration and Management Plan. The letter further characterized the construction of the fishway and fish screens at Robles Diversion Dam as "a keystone restoration action for the entire Ventura River watershed" that was "necessary to ensure the recovery of southern steelhead." CDFG went on to inform Casitas, however, that "[t]he fishway and fish screens alone will only provide marginal benefit to the resource if water flows are insufficient to allow migration to and from the diversion." CDFG thus requested that "Casitas and [BOR] assess the flows for fish passage at Robles Diversion Fishway as well as flow duration necessary to keep migrating and rearing adult and juvenile steelhead below Robles Diversion Dam in good condition." The letter concluded by advising that "[s]hould [BOR] and Casitas choose not to provide adequate flows for steelhead we will need to reconsider whether or not expenditure of public funds for this project through the Fishery Restoration Grants Program will provide the benefits we initially envisioned."

flowing streams . . . even though this taking does not promote, and may unavoidably harm, the trust uses at the source stream." 33 Cal. 3d at 446, 658 P.2d at 727; see also Town of Antioch v. Williams Irrigation Dist., 188 Cal. 451, 459, 205 P. 688, 692 (1922) (recognizing that an appropriator may continue to put water to beneficial use even though that use results in the over salinity of down-stream flows). Defendant's position presumes that the needs of the fish trump all other uses. But what is in the best interest of a single public trust resource is not necessarily what is in the best interest of the public as a whole. This is especially true since California has explicitly identified domestic and irrigation as the highest uses of water. Cal. Water Code § 106 ("It is hereby declared to be the established policy of this State that the use of water for domestic purposes is the highest use of water and that the next highest use is for irrigation."). Defendant must therefore show that the balance between Casitas's various uses and the uses identified in the biological opinion weighs in favor of the fish.

Defendant argues that Casitas's needs should not carry significant weight because the foregone diversions, by defendant's estimation, are in excess of the water needed to meet Casitas's water delivery obligations. Defendant thus sees the weighing of interests as a balance between the potential extinction of a species on the one hand and a one percent loss in excess water supply on the other. Such a balance, defendant maintains, must clearly be struck in favor of the fish. Because we ultimately find that the foregone diversions are not necessarily surplus to Casitas's needs (as explained in Section III below), however, we do not believe defendant has succeeded in demonstrating that the one outweighs the other.

Thus, while defendant has made a compelling case that California is concerned with the preservation of the steelhead, it has failed to show that the fish protection aspect of California's public trust doctrine is superior to other competing interests, including Casitas's use of the water. National Audubon, 33 Cal. 3d at 445–46, 658 P.2d at 727. We are thus unable to conclude, on this evidence, that the operating restrictions imposed on plaintiff under the biological opinion duplicate the result that would have been achieved under state law. Defendant's Lucas defense based on the public trust and reasonable use doctrines therefore must fail.

C. California Fish and Game Code Section 5937

In addition to the public trust and reasonable use doctrines, defendant invokes California Fish and Game Code Section 5937 as an independent defense against plaintiff's takings claim. Defendant maintains that plaintiff was required to bypass a sufficient quantity of water to ensure that fish below the dam are "in good condition"—the requirement set forth in Section 5937—as a condition of Casitas's

streambed alteration agreement with CDFG.[19] Defendant thus contends that the operating restrictions set forth in the biological opinion do no more than impose conditions to which Casitas was already subject and therefore do not constitute a taking.

The difficulty we have with defendant's argument is that it assumes that the operating criteria set forth in the biological opinion impose the same limitations on Casitas as does Section 5937. But Section 5937 provides no quantifiable standard that would allow this court to determine whether requirements of the biological opinion and Section 5937 are one and the same. Section 5937 does not define "good condition," nor does it indicate how far below the dam fish must be kept in good condition. Given such a lack of specificity, we have no way to assess whether the requirements set forth in the biological opinion are indeed requirements to which Casitas was already subject under either Section 5937 or its streambed alteration agreement.[20] We thus conclude that this defense too must fail.

II.

Having defined plaintiff's property right, we turn next to the question of whether that right was in fact taken. Acceptance Ins. Cos., Inc. v. United States, 583 F.3d 849, 854 (Fed. Cir. 2009). The parties each submitted a damages model to quantify and value the amount of water lost, with plaintiff's model reflecting its position that it should be compensated for the impact of the operating restrictions on

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[19] Plaintiff entered into an "Agreement Regarding Proposed Stream or Lake Alteration" with CDFG on June 27, 2003, in which plaintiff acknowledged its state-law duty to ensure that "sufficient water shall at all times be allowed to pass downstream to maintain aquatic life below the dam pursuant to Fish and Game Code section 5937."

[20] To be sure, the SWRCB must enforce Section 5937. But it cannot do so in a vacuum. Section 5937 does not operate outside the larger water scheme in California which includes the constitutional requirements of beneficial and reasonable use, the appropriative water rights system, and the public trust doctrine. Section 5937 has in fact been construed both by the California courts and by the SWRCB as a legislative expression of the public trust doctrine. See, e.g., California Trout, Inc. v. State Water Res. Control Bd., 207 Cal. App. 3d 585, 631–32 (1989); Revised Decision No. 1644, 2003 WL 25920999, at *18 (July 16, 2003); Order No. WR 95-17, 1995 WL 694381, at *6 (Oct. 26, 1995). As a consequence, Section 5937 cannot be viewed as an absolute or in isolation, but must be subject to the same considerations that underpin the other, fundamental water doctrines: the desire to balance competing needs for the good of the whole.

its ability to divert water and defendant's model focusing instead on the effect of the biological opinion, if any, on Casitas's ability to deliver water. Plaintiff accordingly calculated a permanent water loss of 3,492 acre-feet, valuing that water at $25,000 per acre-foot, for a total damages amount of $87.3 million. Defendant, by contrast, calculated a total damages amount of $745,000, reflecting its position that the water lost, if any, was surplus to Casitas's needs. We discuss these models in turn below.

A. Plaintiff's Damages Model

Central to plaintiff's damages theory is a concept referred to as "safe yield"—a commonly used water-planning tool that attempts to limit delivery risk by calculating the amount of water a project can safely deliver to its customers on an annual basis without drawing its reservoir down to a dangerously low level at the end of a critical drought period. Safe yield calculations make several general assumptions: (1) that the reservoir will be full at the start of the relevant period (Lake Casitas has a maximum capacity of 254,000 acre-feet); (2) that the reservoir will gradually be drawn down over the course of a drought period to a minimum level (defined here as 4,800 acre-feet); (3) that historical rainfall data for the driest period on record can be used to model future drought periods; and (4) that the driest period on record could be followed by an even drier period. As plaintiff explains, "[e]ngineers design water projects . . . to yield a specified water supply—safe yield—each year without running dry, even during the most critical drought on record. So water-thirsty districts, like Casitas, manage their water supplies prudently so that annual deliveries do not exceed the safe yield of the project." The resulting calculation is the target amount that a water project can safely deliver to its customers annually.[21]

Safe yield assessments have been made four times in Casitas's history. Prior to the construction of the water project, BOR published a feasibility study in 1954, calculating that a reservoir of approximately 250,000 acre-feet would produce a safe yield of 28,500 acre-feet (based on rainfall data from the drought period 1918–1936) and built Lake Casitas to fit those specifications. When it became clear, however, that the water years 1944–1965 had replaced 1918–1936 as the driest period on record, BOR performed a second safe yield calculation in 1968, reducing the safe yield to 20,350 acre-feet based on this new most critical drought data.[22] Casitas

[21] As defendant points out, however, Casitas can choose to deliver—and indeed in the 1990s did deliver—annual water quantities in excess of this safe yield amount.

[22] As explained at trial, estimates of annual safe yield vary based on both the critical drought period and the differing evaporation rates for Lake Casitas that are (continued...)

conducted its own safe yield analysis for the project in 1989, adjusting several aspects of the 1968 calculation.[23] The resulting safe yield was 21,920 acre-feet. Finally, Casitas performed a fourth safe yield calculation in 2004 to determine the impact that the biological opinion criteria would have on the water project. The resulting report, titled "Casitas Municipal Water District Supply and Use Status Report" ("the 2004 report"), concluded that under the biological opinion criteria, the safe yield for the critical drought period would be 21,630 acre-feet and the yield for the reservoir recovery period (i.e., the period immediately following the critical drought period in which the reservoir is returned to full capacity) would be 21,180 acre-feet.[24] It is these last calculations that form the basis for plaintiff's damages model.

In calculating the amount of water allegedly lost as a result of the biological opinion criteria, plaintiff relies primarily on the 2004 report and the testimony of its authors, Leo D. Lentsch and Steven E. Wickstrum. Mr. Lentsch, a conservation biologist and currently the technical director and vice president of Entrix,[25] was primarily responsible for drafting those aspects of the 2004 report dealing with safe yield. Mr. Wickstrum, a civil engineer and currently the general manager of Casitas, was in turn responsible for drafting those aspects of the report dealing with projected water delivery requirements (i.e., the future water amounts to be delivered to Casitas's customers). Although the report was originally prepared by Casitas

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[22](...continued)
used in the calculation. On average, Lake Casitas loses approximately 5,400 acre-feet per year to evaporation, although the rate of evaporation increases as the surface area of the lake increases and as the weather gets hotter and drier.

[23] According to plaintiff, the 1968 safe yield calculation overestimated the amount of evaporation from Lake Casitas and failed to account for the refilling of Lake Casitas during the wet period 1966–1980.

[24] While safe yield is a commonly used tool in the water-planning community, "yield" (defined by Casitas as the maximum amount of water that can be guaranteed by a water project during a reservoir recovery period) was a concept created by Casitas for the first time in its 2004 report. (The studies conducted in 1954, 1968, and 1989 included only safe yield calculations for the critical drought period and not yield calculations for the reservoir recovery period.) Defendant, by contrast, uses the term "system delivery target" to identify the amount of deliveries that can be made while restoring Lake Casitas from minimum pool to full storage.

[25] At the time the 2004 report was drafted, Mr. Lentsch was employed by Casitas as a fishery biologist, a newly created position he held from May 2002 until May 2004.

employees as a management tool for Casitas's board of directors (and was thus drafted without regard to litigation), it was subsequently updated for trial.

In constructing his safe yield analysis, Mr. Lentsch noted in his expert report that "there is a cyclic and recurring pattern for extended dry periods followed by wet periods in the Ventura River Basin," causing him to project that the "the hydrology will repeat itself, in some manner, on a reliable basis" in the future. Mr. Lentsch accordingly divided his analysis into two historical hydrology periods: (1) a critical drought period (which he identified as occurring from 1945 to 1965) and (2) a reservoir recovery period (which he identified as occurring from 1966 to 1980). Mr. Lentsch estimated that during a drought period (repeating the hydrological conditions that occurred from 1945 to 1965), Casitas could, on average, divert 7,996 acre-feet per year under the 1959 criteria and 6,861 acre-feet per year under the biological opinion criteria, for a difference of 1,135 acre-feet. Similarly, during a reservoir recovery period (repeating the hydrological conditions that occurred from 1966 to 1980), Mr. Lentsch estimated that Casitas could, on average, divert 21,801 acre-feet per year under the 1959 criteria and 18,905 acre-feet per year under the biological opinion criteria, for a difference of 2,896 acre-feet. Taking a weighted average of those numbers, Mr. Lentsch concluded that the average annual reduction in diversions resulting from the biological opinion criteria over the entire 36-year drought/recovery period would be 1,915 acre-feet.

Mr. Lentsch next determined the impact the change in operating criteria would have on the water project's safe yield. As with the diversion calculations, Mr. Lentsch divided his model into two time periods: the critical drought period from 1945–1965 and the reservoir recovery period from 1966–1980. Mr. Lentsch determined that during a period of drought, the safe yield under the 1959 criteria would be 22,770 acre-feet and the safe yield under the biological opinion criteria would be 21,630 acre-feet, for a difference of 1,140 acre-feet. Similarly, Mr. Lentsch determined that during a reservoir recovery period, the yield under the 1959 criteria would be 24,180 acre-feet and the yield under the biological opinion criteria would be 21,180 acre-feet, for a difference of 3,000 acre-feet. Mr. Lentsch thus calculated an average difference in safe yield over the 36-year drought/recovery period of 1,915 acre-feet.[26]

Following Mr. Lentsch's trial testimony regarding projected water supply, plaintiff in turn called Mr. Wickstrum to discuss projected water demand. In formulating a model to estimate Casitas's future water needs, Mr. Wickstrum

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[26] Although Mr. Lentsch's calculation of foregone diversions was based on the same data and produced virtually the same numbers as his safe yield calculation, he emphasized at trial that plaintiff's damages claim was based exclusively on the latter.

observed that Casitas's customers rely more heavily on the water project in dry years when they are unable to meet their water needs directly through rainfall. In addition, Mr. Wickstrum postulated that "multiple years of dry conditions cause an escalation of the delivery occurring in any one year," an effect he referred to as a "dry year multiplier." Mr. Wickstrum thus hypothesized that annual rainfall was the primary determinant in projecting future water deliveries.

Based on this theory, Mr. Wickstrum created a formula that allowed him to predict water deliveries given the amount of annual rainfall and the number of sequentially occurring dry years. Using historical rainfall patterns and assuming Casitas's current level of demand, Mr. Wickstrum calculated that a repeat of the rainfall conditions that had occurred from 1945–1965 (the critical drought period) would produce annual delivery requirements of 21,517 acre-feet and that a repeat of the rainfall conditions that had occurred from 1966–1980 (the wet period) would produce annual delivery requirements of 19,350 acre-feet.

Mr. Wickstrum went on to discuss that aspect of the 2004 report that compared the projected safe yield with the anticipated water deliveries under four scenarios: (1) a critical drought period (using hydrological data from 1945–1965) supplemented by water from the Matilija Dam;[27] (2) a critical drought period without additional water from the Matilija Dam; (3) a reservoir recovery period (using hydrological data from 1966–1980) supplemented by water from the Matilija Dam; and (4) a reservoir recovery period without additional water from the Matilija Dam. The results indicated that the safe yield would exceed the projected water deliveries for all but the second scenario—when the project was operated during a critical drought period without additional water from the Matilija Dam. Under such a scenario, described in the report as the "most likely," the biological opinion criteria were projected to result in a water deficit of approximately 360 acre-feet per year.

Although plaintiff discussed each aspect of the 2004 report at trial—the average annual reduction in diversions, the projected delivery amounts, and the comparison of safe yield with delivery estimates under each of the four scenarios—plaintiff's damages model was ultimately concerned only with the safe yield calculation. In plaintiff's view, the reduction in safe yield resulting from the biological opinion criteria best reflects plaintiff's actual damages because the taking is a permanent one—i.e., the biological opinion's ongoing restrictions will result in

[27] The Matilija Dam is an upstream water source which currently provides Casitas with additional water but is potentially slated for demolition. Casitas's 2004 report therefore analyzed the effect the removal of the dam would have on Casistas's water supply. At trial, however, Mr. Lentsch and Mr. Wickstrum advised the court that plaintiff's damages model was limited to the scenarios that included the Matilija Dam, consistent with Casitas's current operational condition.

the permanent decrease in Casitas's water supply. Plaintiff maintains that it was therefore required to present a damages model that attempts to reflect what will happen in the future, i.e., over an entire 36-year drought/recovery cycle, and not simply the effect of the biological opinion to date. Plaintiff thus identifies its injury resulting from the biological opinion as the permanent loss of 1,915 acre-feet as measured by the average annual reduction in its safe yield.

In addition to the water lost as a result of the biological opinion criteria, plaintiff includes in its damages model an amount of water lost as a result of what plaintiff terms "fish screen inefficiencies"—the accumulation of river debris on the fish screens that prevents Casitas from diverting the full amount of water it otherwise would be permitted to divert under the biological opinion.[28] Employing the same analysis that Mr. Lentsch had used to predict water losses resulting from the biological opinion criteria and using data from the four significant storm events in 2006, Mr. Wickstrum determined that Casitas would experience an additional average water loss of 1,118 acre-feet per year during a repeat of the critical drought period 1945–1965 and an average water loss of 2,220 acre-feet per year during a repeat of the reservoir recovery period 1966–1980, for a total average annual water loss of 1,577 acre-feet as a result of fish screen clogging.[29] Considered, then, in its entirety, plaintiff's damages model identifies a permanent water loss of 3,492 acre-

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[28] Prior to the construction of the fish passageway, river diversions were accomplished through unobstructed canal gates that allowed the full authorized diversion capacity of 500 cubic feet per second to enter into the canal for routing to Lake Casitas. As part of the construction of the fish passageway, however, screens were added to the canal entrance to prevent fish from entering the canal. These screens, plaintiff explains, become clogged with debris during storm events and thus decrease the rate and amount of water that can be diverted into the canal. Although the fish screens can clog in less than one hour during periods of high flow, plaintiff contends that Casitas cannot simply shut down operations to unclog the fish screens because it would risk losing some of the water that it is permitted to divert. Plaintiff maintains that Casitas is therefore forced to operate the diversion dam with clogged fish screens during the most critical periods of flow, severely impacting Casitas's water supply. Plaintiff asserts that the resulting loss of water is attributable to defendant because the government both required the construction of the fish screens and insisted upon their design.

[29] Neil Cole, Casitas's principal civil engineer, testified that the water project has improved its fish screen operations since 2006 and that the annual water losses attributable to the fish screen clogging for the period 2005–2009 "averages out to 1,430 acre-feet." Mr. Cole expressed the opinion, however, that the fish screen losses could never be completely remedied. It is unclear from the record whether plaintiff's damages claim incorporates Mr. Cole's updated calculation.

feet—1,915 acre-feet attributable to the diversion limitations imposed under the biological opinion criteria and 1,577 acre-feet attributable to fish screen inefficiencies.

B. Defendant's Damages Model

Defendant, for its part, challenges the fundamental premise of plaintiff's damages model, arguing that the concept of safe yield is not an appropriate method either for establishing the existence of a taking or for measuring the quantity of water lost. As to the first point, defendant maintains that plaintiff has no property right to the water project's safe yield (or yield), but only to the beneficial use of the water. Defendant thus argues that the reduction in safe yield which forms the basis for plaintiff's damages model is not enough—in the absence of a showing that beneficial use has consequently been affected—to prove that a compensable property right has been taken.

Nor, in defendant's view, can plaintiff rely on the reduction in safe yield to establish the amount of water physically lost. Safe yield and yield, defendant observes, are merely theoretical concepts—ones whose values can vary dramatically depending on the critical drought period used[30] or on the reservoir fill date selected.[31] Significantly, safe yield does not purport to measure the volume of water that has actually passed through the fish facility since its construction or the quantity of water that is expected to pass through the fish facility in the future—the only quantities, defendant maintains, that are relevant in a physical takings analysis.[32]

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[30] As defendant points out, Casitas's safe yield had been calculated on three occasions prior to the issuance of the biological opinion, including in 1968 when it became clear that 1944–1965 had replaced 1918–1936 as the driest period on record. That adjustment resulted in a reduction in the safe yield from 28,500 acre-feet per year to 20,350 acre-feet per year.

[31] Defendant's chief expert, Curtis E. Spencer, explained at trial that the yield calculation changes depending on the target date chosen to fill the reservoir. If a target date of February 29, 1980, were selected, for instance, Mr. Spencer calculated that the projected yield would be 21,329 acre-feet; if the target date were instead April 30, 1980, the projected yield would be 22,766 acre-feet; and if the target date were May 31, 1983, the projected yield would be 24,649 acre-feet. Mr. Lentsch himself acknowledged that he could have used "a lot of different dates" in calculating the water project's yield.

[32] Indeed, plaintiff has acknowledged that although it could have done so, it has made no attempt to measure the volume of water that has passed through the fish

(continued...)

In contrast, then, to plaintiff's safe yield analysis, defendant's damages model focuses instead on the quantity of water that has been or is projected to be diverted through the fish passageway as a result of the biological opinion and the effect of those lost diversions on plaintiff's ability to deliver water to its customers. In addressing these issues, defendant relies primarily on the testimony of its hydrology expert, Curtis E. Spencer, a civil engineer with extensive experience in water resource management. Consistent with defendant's theory of liability—that the only compensable property interest under state law is a right to the beneficial use of water—Mr. Spencer reasoned that Casitas would suffer injury—and therefore be eligible for just compensation—only if the operating criteria set forth in the biological opinion prevented Casitas from making beneficial use of the 28,500 acre-feet of water identified in its water license. Working under this assumption, Mr. Spencer thus reached two central conclusions: (1) Casitas had ample water stored in Lake Casitas between 1999–2009 to meet all of the purposes provided in its license; and (2) the likelihood that the implementation of the biological opinion criteria will result in water supply losses to Casitas or its customers in the future is very small. The biological opinion, defendant thus argues, has not impacted, and is not likely to impact, Casitas's only possible compensable property interest—the right to beneficial use.

In reaching these conclusions, Mr. Spencer began by calculating what he referred to as the "diversion difference"—a day-by-day comparison of the amount of water Casitas could have diverted under the original 1959 criteria (with bypass flows of 20 cfs) and the amount of water plaintiff would be permitted to divert under the biological opinion criteria (with bypass flows in the neighborhood of 50 cfs) for the period 1991—2009.[33] That difference, Mr. Spencer explained, represented the

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[32](...continued)
facility to date.

[33] Typically, Casitas is able to divert less water under the biological opinion criteria than under the 1959 criteria. There are, however, two exceptions to this general rule. First, Mr. Spencer observed that on several occasions in 2008 and 2009, the amount of water diverted under the biological opinion criteria was greater than would have been diverted under the 1959 criteria because the fish passage facility allowed diversions during relatively low river flow that would not have been made under the 1959 criteria. (The fish passage facility allowed for the pooling of water.) Second, because Lake Casitas would have filled faster under the 1959 criteria than under the biological opinion criteria and because diversions cease when the reservoir is full, Mr. Spencer noted that Casitas was able to operate the Robles Diversion Dam on more days in 2005 under the biological opinion criteria than it would have been
(continued...)

incremental amount of water that Casitas could have placed in storage in Lake Casitas had it not been complying with the biological opinion criteria and thus reflected the physical decrease in the volume of water stored in Lake Casitas resulting from the foregone diversions. According to these calculations, Casitas suffered a diversion difference of 14,192 acre-feet during the period February 25, 2000–September 30, 2009, or, in the alternative, a diversion difference of 7,637 acre-feet during the period May 2, 2003–September 30, 2009.[34]

Mr. Spencer went on to explain, however, that the cumulative diversion difference is not simply the sum of the annual diversion differences because of a commonly recognized concept referred to as "spill." According to Mr. Spencer, when Lake Casitas fills and overflows (an event that has occurred seven times since the reservoir first filled in 1978—in 1979, 1980, 1983, 1986, 1993, 1995, and 1998), any diversion difference to that point is essentially "erased" because the extra water that would have been available for diversion under the 1959 criteria would have spilled out of the reservoir and been lost. (In other words, the deficit due to the annual diversion differences between the actual reservoir level and the would-have-been reservoir level is reduced to zero when the actual reservoir is full.[35])

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[33](...continued)
able to under the 1959 criteria because the water level of Lake Casitas at the start of 2005 was lower by the amount of the diversion differences that had accumulated from 1999–2004.

[34] In his report, Mr. Spencer provided calculations for two different scenarios, the first scenario assuming that the takings period commenced (and thus the diversion differences began to accrue) on February 25, 2000, the date Casitas notified NMFS of its compliance with the 50 cfs bypass flow requirements and the second scenario assuming that the takings period did not commence until May 2, 2003, the date Casitas implemented the interim biological opinion criteria. Mr. Spencer explained that he had presented the two scenarios to account for the fact that Casitas may or may not have been acting voluntarily in bypassing flows of 50 cfs during the period February 25, 2000—May 1, 2003. At trial, however, plaintiff expressed the view, based on its reading of the Federal Circuit's decision, that its takings claim accrued in February 2005, when the water physically started flowing through the fish passage facility.

[35] Diversion differences generally lead to a decrease in the volume of water stored in Lake Casitas, or a storage deficit. As diversion differences accumulate, the size of the deficit—i.e., the difference between the actual volume of the reservoir under the biological opinion criteria and the volume as it would have been under the 1959 criteria—increases. But when the reservoir spills in the real world, the
(continued...)

Mr. Spencer thus concluded that in spite of the fact that Casitas had lost water as a result of the biological opinion during the 2000–2006 period, those losses were nevertheless offset by the filling of the reservoir in 2005 and again in 2006.[36] Mr. Spencer's report thus indicated that the cumulative diversion difference under the first scenario (assuming the taking began in 2000) was reduced to 3,586 acre-feet as of September 30, 2005, and was further reduced to 1,222 acre-feet as of September 30, 2006. Continuing his calculations, Mr Spencer concluded that for the period 1999–2009, Casitas had 4,079 acre-feet less water as a result of operating under the biological opinion criteria than it would have had operating under the 1959 criteria.

Mr. Spencer testified, however, that this diversion difference has not affected Casitas's water deliveries to date. In Mr. Spencer's view, diversion differences do not limit Casitas's ability to put water to beneficial use until Lake Casitas drops below 4,800 acre-feet. Because Lake Casitas contained between 157,595 acre-feet and 252,597 acre-feet of water during the 1999–2009 period, Mr. Spencer concluded that lake storage volume has not limited annual withdrawals.

Having calculated the diversion differences to date, Mr. Spencer next turned to diversion differences expected to arise in the future. To estimate those differences, Mr. Spencer applied the average daily diversion difference he had calculated for the period 1991–2009 to the actual days of operation from October 1961 (when Lake Casitas first began storing water) through September 2009 (the conclusion of his study).[37] Based on these results, Mr. Spencer concluded that if the biological opinion criteria had been in effect during the 48-year period from late 1961–2009, the average diversion difference, before accounting for spill, would have been 1,511 acre-feet annually. Mr. Spencer pointed out, however, that although "some fairly significant diversion differences . . . would have accrued through the 1970s," those differences

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[35](...continued)
difference between the reservoir as it is and the reservoir as it would have been is reduced to zero. Accumulated diversion differences are therefore erased.

[36] According to Mr. Spencer, in 2005, under actual conditions, Lake Casitas filled to within two feet of its spillway rim, and Casitas ceased diversions in accordance with its standard operating procedure. Lake Casitas continued to fill, and came within 3,483 acre-feet of being completely full on April 5 and 6, 2005, and within 1,405 acre-feet of being completely full on May 16–18, 2006.

[37] Mr. Spencer explained that he had initially selected the period 1961–2009 as the basis for his analysis because it coincided with the dates when the water project was in full operation (1959 was an incomplete year and 1960 had virtually no operation). Mr. Spencer thus described this period as containing the most reliable data about Casitas's operations.

"would have been erased by the reservoir filling and spilling by 1980." Mr. Spencer went on to note that the accumulated diversion differences would have been erased four additional times during that period—when the reservoir filled and spilled in 1983, 1993, 1995, and 1998. Finally, Mr. Spencer explained that the diversion differences for the period 1998–2009 would essentially be the same as those he had derived in his first exercise (i.e., 4,079 acre-feet as of September 30, 2009).

Mr. Spencer repeated this calculation for the period 1977–2009.[38] Based on these results, Mr. Spencer concluded that the average annual diversion difference for the 32-year period, before spill, would have been 1,427 acre-feet (858 acre-feet per year during the 1986–1992 drought period and a weighted average of 1,659 acre-feet per year for the periods 1977–1986 and 1992–2006). Additionally, Mr. Spencer repeated his conclusion that the diversion differences would be erased every time Lake Casitas fills completely and would be reduced every time the lake fills to within two feet of the spillway rim. Mr. Spencer went on to observe that "[b]ased on the history of the project, it appears likely that Lake Casitas will fill and spill again in the future, reducing or completely offsetting past and future accumulated diversion differences."

Having quantified the future diversion differences, Mr. Spencer next considered the impact, if any, those differences would have on Casitas's ability to deliver water to its customers. Mr. Spencer observed first that future diversion differences are very likely to be offset when Lake Casitas fills and spills as was evidenced in his earlier calculations. In addition, Mr. Spencer pointed out that a portion of the foregone diversions would be made up by amounts that could not have been diverted under the 1959 criteria. Mr. Spencer added that there are protections in place to prevent the complete draw-down of the reservoir, including conservation measures already adopted by Casitas and drought-protection provisions set forth in

[38] Mr. Spencer testified that he had ultimately concluded that the years 1977–2009 were preferable to the years 1961–2009 as the basis for his analysis because the former period better replicated the current operation of the Robles facility. In particular, Mr. Spencer noted that Lake Casitas had not yet reached full capacity during the years October 1961–September 1977, and thus the water project operated for more days during that period than it did in the post-1978 period. For the same reason, the period October 1961–September 1977 saw no suspensions of operations due to the filling of the reservoir as is now typical. During the 1977–2009 period, by contrast, the reservoir had filled to about the same storage that it is today and thus, in Mr. Spencer's view, gives "a relatively comparable comparison of circumstances, if we're looking forward from today, [of what] might happen in the future."

the biological opinion.[39] Finally, Mr. Spencer observed that Lake Casitas could fill completely in three very wet years (although he conceded that such conditions had never occurred).[40] Taking these circumstances together, Mr. Spencer concluded that although "[t]he future of these diversion differences is unknown," plaintiff is highly unlikely ever to suffer any incursion into its water supply as provided by its water license.

Nor, in Mr. Spencer's view, can plaintiff recover under its theory of safe yield. Mr. Spencer concluded, based on Casitas's own analysis, that Lake Casitas contained enough water in storage as of September 30, 2009, to provide six years of deliveries at Casitas's safe yield of 21,630 acre-feet per year, even if no rain fell at all during that period (an event, Mr. Spencer pointed out, that has never occurred). If instead the rainfall patterns experienced during the critical drought period of 1945–1965 repeated themselves beginning in 2006, Mr. Spencer concluded that Casitas could still provide the safe yield of 21,630 acre-feet per year for another 18 or 21 years. Indeed, Mr. Spencer observed that only under one scenario—an extended period of drought without the benefit of supplementary water from the Matilija Dam—does Casitas's 2004 report indicate that the projected deliveries would exceed the safe yield. Mr. Spencer noted, however, that such a scenario fails to account either for the water conservation efforts Casitas already has in place (or will be required by the state to implement in the future on unrelated grounds) or for the drought protections set forth in the biological opinion—both of which would help prevent Lake Casitas from being drawn down to storage levels below 50,000 acre-feet. Mr. Spencer thus concluded that under every scenario, Casitas will be able to satisfy all of its anticipated water needs, even with the biological opinion in place.

This is especially the case, defendant argues, when the errors in plaintiff's demand model are corrected. According to defendant, plaintiff's demand calculations contain numerous methodological and mathematical errors, resulting in

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[39] Casitas has adopted a Water Efficiency and Allocation Program to maximize the efficient use of its water. The program sets forth five stages of implementation, including conservation measures in Stage 1 undertaken voluntarily by Casitas's customers, additional measures in Stages 2–4 imposed at the discretion of the Casitas's board of directors, and mandatory measures in Stage 5 triggered when Lake Casitas's storage volume drops to 65,000 acre-feet. The biological opinion additionally contains drought-protection measures that permit the fish release criteria to be relaxed if Lake Casitas's storage level falls below 100,000 acre-feet and to be suspended if its storage level falls below 17,000 acre-feet.

[40] Mr. Spencer observed that Lake Casitas receives, on average, only about 40 percent of its water supply from diversions; the rest comes directly from precipitation.

an overstatement of the amount of water that would be necessary to meet Casitas's future delivery requirements. In support of this point, defendant offered the testimony of Dr. Tasneem Chipty, an expert in econometrics (the application of statistics to economic principles). Accepting Mr. Wickstrum's modeling approach at face value but simply correcting for what she described as "obvious data errors" and "methodological flaws," Dr. Chipty concluded that plaintiff's own model projected sufficient water supply to meet its forecasted demand under all scenarios. In particular, where Mr. Wickstrum had calculated a water deficit of 677 acre-feet per year (representing the amount by which future water deliveries were expected to exceed the safe yield), Dr. Chipty's corrections indicated that the calculation instead should have been a surplus of either 745 or 760 acre-feet per year (depending on the dry year multiplier chosen). Dr. Chipty thus challenged Mr. Wickstrum's conclusion that the biological opinion criteria would ever result in a shortfall in Casitas's water supply.[41]

In addition to challenging plaintiff's safe yield approach, defendant similarly takes issue with plaintiff's claim relating to fish screen inefficiencies. In defendant's view, the court should reject any damages attributed to fish screen inefficiencies because (1) the government neither commissioned nor designed the fish screens and therefore cannot be held responsible for their effects, and (2) plaintiff's experts based their opinions on insufficient facts and unreliable methodologies resulting in erroneous conclusions about future losses and valuation. As to the first point, defendant argues that the decision to install fish screens (rather than to pursue a compliance alternative that would have resulted in less water loss) was made by Casitas, as was the selection of the particular fish screen design and configuration. Indeed, defendant contends that the ongoing efforts to improve the fish screen inefficiencies are entirely within Casitas's control.[42] Defendant thus maintains that

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[41] In addition to the data and methodological errors identified by Dr. Chipty, defendant maintains that plaintiff's demand calculations overestimate the actual amounts delivered by Casitas by more than 2,100 acre-feet per year and include approximately 920 acre-feet per year of water loss (i.e., unaccounted for water that is unexplainably lost to the system but not registered as delivered) that has since been dramatically decreased. Defendant thus asserts that plaintiff's calculations overstate delivery requirements by approximately 3,000 acre-feet per year. Although plaintiff disputed these conclusions, Mr. Wickstrum's expert report was not ultimately submitted into evidence.

[42] Steven Thomas, a civil engineer employed by NMFS with extensive experience in fish ladders and screens, testified that plaintiff could have greatly reduced or completely eliminated the losses it experienced in 2006 if it had fixed its brush-cleaning system earlier. Further, Mr. Thomas observed that in the more than

(continued...)

neither the design of the fish passageway nor its inefficiencies can be charged to the United States. Nor, in defendant's view, is it reasonable to use data from 2006 as a basis for estimating future losses when the evidence shows that such inefficiencies already have been ameliorated.[43] Defendant accordingly urges the court to reject the entire fish screen component of plaintiff's claim.

III.

In evaluating the parties' respective approaches to damages, we must begin with the property right itself: the right to the beneficial use of water. Casitas's beneficial use is affected when its customers (whether actual or potential) receive less water as a result of the biological opinion criteria than they otherwise would have received under the 1959 criteria. The question thus becomes: what is the best way to measure this shortfall and has such a shortfall occurred?

Plaintiff, in basing its damages calculation on the difference between the safe yield associated with the 1959 criteria and the safe yield associated with the biological opinion criteria, focuses exclusively on water supply. Plaintiff's damages model does not, however, purport to assess the effect the reduction in safe yield will have on Casitas's ability to meet its customers' water needs. The reduction in safe yield, in other words, reveals nothing about the impact of the biological opinion, if any, on beneficial use. If Casitas is never forced to deny a water request as a result of the new operating criteria (either from an actual or potential customer), it will have suffered no compensable injury. The impact on beneficial use thus requires an assessment of demand.

The evidence before the court suggests that there has been no encroachment on plaintiff's beneficial use to date. Since the issuance of the biological opinion in 2003, plaintiff has not reduced water deliveries to any of its existing customers, has not turned away any prospective customers (and has in fact both added new customers and eliminated its wait list), has not changed how it allocates water to its

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[42](...continued)
50 different fish screen cases he has encountered, he has "never seen a well designed, operated, and maintained fish screen fail to provide efficient water diversions under any debris load."

[43] Defendant observes that even Mr. Cole's updated calculation of water loss due to fish screen inefficiencies—1,430 acre-feet—is based on only four years of data—2005–2009—with two of the four years registering virtually no flows at all. Such data, defendant maintains, is inadequate to make a reliable projection of future water loss.

customers, has not purchased alternative water supplies, has not instituted any mandatory water conservation measures or changed its drought contingency measures, and has not increased the price of the water due to the biological opinion. Indeed, since 2003, the water available for delivery from Lake Casitas has fluctuated between 157,595 acre-feet and 252,597 acre-feet, far above the 28,500 acre-feet that Casitas is authorized to put to beneficial use under its license. (In fact, at no time has Casitas delivered the full 28,500 acre-feet identified in its license.) Plaintiff, in other words, has produced no evidence that the biological opinion has so far resulted in any reduction in actual water deliveries by Casitas.

As to future water supply, defendant notes that plaintiff's own damages model indicates that the available supply will continue to exceed the anticipated demand in all future scenarios except in the event of a reoccurrence of the most extreme drought on record, and even then, only if Matilija Dam is removed as a supplementary water source. Moreover, once the errors in plaintiff's demand analysis are corrected, defendant maintains that the safe yield and yield will exceed the delivery requirements under each of the four future scenarios identified in plaintiff's damages model.

Defendant's points, however well taken, are premature. Because the relevant property interest is plaintiff's right to beneficial use, that right cannot be taken until defendant's action encroaches on plaintiff's ability to deliver water to its customers. Since that condition has not occurred, plaintiff's cause of action is not ripe.

In general, a cause of action is said to accrue "when all events have occurred to fix the Government's alleged liability, entitling the claimant to demand payment and sue here for his money." Nager Elec. Co. v. U.S., 177 Ct. Cl. 234, 240, 368 F.2d 847, 851 (1966); see also Northwest Louisiana Fish & Game Preserve Comm'n v. United States, 446 F.3d 1285, 1290 (Fed. Cir. 2006) (identifying "[t]he correct standard" for accrual as the point when "all events which fix the government's alleged liability have occurred" and "the harmed party knows or should have known of their existence"). A claim does not accrue, however, "until a claimant has suffered damages." Terteling v. United States, 167 Ct. Cl. 331, 338, 334 F.2d 250, 254 (1964). As the Federal Circuit has explained, "[a] possible future taking of property cannot give rise to a present action for damages." Northwest Louisiana, 446 F.3d at 1291 (citing United States v. 3,218.9 Acres of Land, 619 F.2d 288, 291 (3rd Cir. 1980)). This, we believe, is the situation here.

In Northwest Louisiana, 446 F.3d 1285, the plaintiff asserted a takings claim under the theory that a water project developed by the Army Corps of Engineers prevented the plaintiff from drawing down a lake, thereby limiting the plaintiff's ability to control the growth of aquatic weeds in the lake and ultimately rendering a portion of the lake virtually unusable. The United States argued that the claim accrued in 1994 when the Corps completed its water project and that the suit was

therefore barred by this court's six-year statute of limitations. The trial court agreed. Northwest Louisiana Fish & Game Preserve Comm'n v. United States, 62 Fed.Cl. 760 (2004). Reasoning that the Corps was responsible only for "the taking of the right to drain water from [the lake] into [the river]," and not for "uncontrolled aquatic growth," the court concluded that the claim accrued in 1994 when the plaintiff "knew or should have known" that the government's action would result in uncontrolled aquatic growth. Id. at 767–68. The trial court further noted that the plaintiff had calculated "as early as 1992" the cost of controlling the aquatic growth over the lifetime of the project and on that ground, the court concluded that the damages in the case "were not only foreseeable, but in fact foreseen" even before 1994. Id. at 766.

The Federal Circuit reversed. Northwest Louisiana, 446 F.3d 1285. Finding that the harm alleged—the uncontrolled growth of the vegetation—did not occur until 1997, the court concluded that the events that fixed the Corps' alleged liability did not occur—and the takings claim did not therefore accrue—until that date. Id. at 1292 (citing 3,218.9 Acres of Land, 619 F.2d 288, and Terteling, 334 F.2d at 254). What was important to the court for accrual purposes, in other words, was not the event that set the gradual growth problem in motion, i.e., the Corps' action, but rather the time when the nature and extent of that harm became clear. Until that time, the court explained, the plaintiff:

> could only conjecture about potential harms or the prospect that the Corps may agree to mitigate those harms when [or] until they actually occurred. The [plaintiff's] calculation of damages of about eight million dollars in 1992 (before the trial court's erroneous accrual date) does not demonstrate, as the trial court mistakenly held, that "the damages in this case were not only foreseeable, but in fact foreseen." Rather, this calculation, which was apparently too low, shows not only that damage was a potential future occurrence but that early calculation of its extent was premature. Indeed, the Corps might have elected to avoid the damages altogether by allowing a drawdown, which would alleviate the overgrowth of [aquatic weeds].

Northwest Louisiana, 446 F.3d at 1291–92.

The Federal Circuit thus found that a cause of action accrues only when the damages are "quantifiable and present"—an event it defined as occurring when the vegetation had grown to harmful levels and the Corps refused to drain the lake to alleviate the harm caused by the overgrowth. Id. at 1291. Until that time, the Federal Circuit reasoned, the potential harm caused by the vegetation "was only a threat." Id.

The same is true here. While the government has interfered with plaintiff's

ability to divert water—and has done so since the opening of the fish passage facility necessitated by the steelheads' ESA listing—it remains to be seen whether the government's actions will subsequently interfere with Casitas's beneficial use of its water. Absent such a present, compensable injury, Casitas's takings claim is simply not ripe.

Our conclusion is confirmed by the court's decision in Cloutier v. United States, 19 Cl. Ct. 326 (1990), aff'd, 937 F.2d 622 (Fed. Cir. 1991). In Cloutier, landowners adjacent to the Achafalaya River in Louisiana sued for the taking of their property when a floodwall constructed by the Army Corps of Engineers exposed their land to an increased risk of flooding. Id. at 327. Without questioning the assertion that the floodwall was likely to expose the landowners to a greater flood risk, the court rejected the claim on ripeness grounds as follows:

> There admittedly has not been, as yet, even $1.00 of actual physical injury to plaintiffs' property as a result of the [new floodwall]. Without proof that some damage has already occurred, plaintiffs' claim of a taking is simply not ripe for a decision. The facts show that plaintiffs' potential *future* damages attributable to an increase in water flowage is entirely speculative and cannot be determined or estimated at this time.

Id. at 330 (citation omitted).[44]

It should be made clear, however, that our concern is not about the uncertainty of the economic impact of the government action, but with the uncertainty of whether plaintiff's beneficial use will in fact be impacted and thus

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[44] In support of its conclusion, the Cloutier court additionally observed:

> Plaintiffs' property is being used substantially as it has been since they acquired it. The perceived threat of flooding . . . has not caused them within the five years since completion of the new floodwall to materially change their access to their property, to increase the elevation of their structures, or to redesign such structures in anticipation of being faced with additional flowage. This inaction suggests that plaintiffs may regard any potential increase in flowage, at best, as speculative and, at worst, only a minor threat to their uninterrupted use and occupancy of the property for the reasonably foreseeable future.

Id. at 329 (citations omitted). This situation, we believe, is similar to the instant case, particularly since Casitas has not to date replaced the lost water.

whether a taking will occur at all. We do not therefore see our holding as conflicting with that body of law that focuses, for accrual purposes, on the government action rather than on the time when the consequences of that action are fully felt. See, e.g., Delaware State College v. Ricks, 449 U.S. 250, 258 (1980) (holding that the proper focus in an analysis of a claim accrual "is upon the time of the [defendant's] *acts*, not upon the time at which the *consequences* of the acts become most painful"); Goodrich v. United States, 434 F.3d 1329, 1336 (Fed. Cir. 2006) (holding that the "'obligation to sue' arises once the 'permanent nature' of the government action is evident, regardless of whether damages are 'complete and fully calculable'") (quoting Fallini v. United States, 56 F.3d 1378, 1382–83 (Fed. Cir. 1995)); State of Alaska v. United States, 32 Fed. Cl. 689, 700 (1995) (rejecting the argument that a claim does not accrue until the extent of the damages has become manifest). The injury here is a necessary component of the taking.

As the court recognized in Northwest Louisiana, 446 F.3d at 1290, the harm in the instant case—the interference with beneficial use—occurs, if at all, as a consequence of the taking. Importantly, though, the government action "only set[s] in motion the potential for future harm" and the harm itself may "not exist until much later." Id. We thus conclude that a takings claim will accrue when the biological opinion causes Casitas to provide its customers with less water than it otherwise would have delivered. Not until that time—when Casitas can demonstrate an actual water sale lost—will its property right to the beneficial use of its water have been taken.

That is not to say, however, that such an injury would occur only when the quantity of water stored in Lake Casitas is insufficient to meet customer demand. In defendant's view, beneficial use will not be impacted until the volume of Lake Casitas drops below 4,800 acre-feet, i.e., until the reservoir's water supply is nearly depleted. But that assertion ignores the fact that the prudent operation of the water project will require Casitas, in the face of foregone diversions, to ration water long before the total depletion of the reservoir. Clearly, plaintiff cannot be required to draw the reservoir dry before it can demonstrate harm. Rather, it is our view that plaintiff can establish a compensable injury when the foregone diversions resulting from the biological opinion criteria reduce the water project's safe yield to the point when deliveries are affected—i.e., to the point when use becomes constrained.

Admittedly, this formulation does not account for the concept of spill. As discussed in Section II above, defendant's expert, Mr. Spencer, testified that the effect of the biological opinion criteria is essentially erased when Lake Casitas spills (i.e., fills and overflows) because any additional water Casitas potentially could have diverted under the 1959 criteria would in fact be lost. In order to incorporate this concept, we would arguably be required to identify the injury as occurring only when the demand exceeds the accumulated diversion differences attributable to the biological opinion (differences that are eliminated each time the reservoir spills). But

that approach ignores the way Casitas actually operates: the safe yield is the management tool that guides the quantity of water Casitas delivers annually to its customers. (The safe yield is not recalculated simply because Lake Casitas spills.) We thus find the safe yield—setting forth the reservoir's annual delivery capacity—to be the best measure of the biological opinion's impact on plaintiff's ability to deliver water.

Nor do we believe that the existence of water delivery requests from current customers is the only method of proving demand. If plaintiff can show that as a result of the biological opinion criteria it has turned away water delivery requests, refused new customers, compiled a wait-list of unserved customers, or been forced to employ conservation measures to make up for any water shortfall, plaintiff equally will have established an injury.

In addition, it is our view that the biological opinion's impact on Casitas's water supply must take into account the water lost as a result of the fish screen inefficiencies.[45] Contrary to defendant's assertion, we believe that the inefficiencies should indeed be charged to the United States—along with the necessity for plaintiff's construction of the fish passageway in the first instance—as the consequences associated with plaintiff's reasonable response to the government's action (a conclusion we discuss in more detail in Section IV below). We do not believe, however, that it is legitimate to use data from the first years of the fish passageway's operation as a basis for calculating fish screen losses when the evidence shows that the severity of those initial losses already has been ameliorated. Presumably, however, a more accurate picture of the fish screen losses (including more years of data and more representative data) will be available by the time plaintiff's cause of action accrues.

We recognize, of course, that several factors could affect the accrual of plaintiff's takings claim. As an initial matter, the State Water Resources Control Board could at any time revisit the terms of Casitas's license (the Board has in fact retained jurisdiction over Cal Trout's petition to alter Casitas's license pending the outcome of this action). Should the SWRCB ultimately find that flows of 50 cfs or more are necessary to protect the steelhead,[46] then any prospect plaintiff may have

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[45] It is unclear from the record whether the safe yield calculations introduced by plaintiff at trial incorporate the water lost as a result of fish screen inefficiencies.

[46] As explained in the post-trial amicus brief filed in the present case on behalf of the Board, although the Board declined to amend Casitas's license when petitioned by Cal Trout, it had done so because "it was satisfied that Casitas' apparent voluntary compliance with the biological opinion was sufficient to protect (continued...)

had for pursuing a takings claim in this court will be eliminated. We reach this conclusion for two reasons. First, we would view such a pronouncement by the Board as a determination that the public trust doctrine strikes the balance between consumptive and environmental needs in this case in favor of the fish. That conclusion would be enough for defendant to succeed in a background principles of state law defense under Lucas. (Lucas, it should be remembered, counsels that a plaintiff possesses no property right in a use that could have been prevented under background principles of state law.) Second, plaintiff's takings claim against the United States could not proceed at that point because the new operating restrictions would be due to the state, not to the federal government. And to the extent that prior to the SWRCB's amendment of plaintiff's license, plaintiff had been unable to show that the demand had been unmet as a result of the biological opinion, no injury would be associated with that period.

In addition, the accrual of plaintiff's takings claim may be forestalled by the implementation of the drought protection measures set forth in the biological opinion. Under the biological opinion, the fish release criteria may be relaxed if Lake Casitas's storage level falls below 100,000 acre-feet, may be revisited if the storage level falls below 65,000 acre-feet, and may be suspended entirely if the storage level

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[46](...continued)
the Ventura River steelhead fisheries for purposes of Casitas' compliance with state law." Rather than dismissing the petition, however, the Board advised in its January 27, 2006, letter to Cal Trout that it would hold the petition in abeyance, observing that "[a] hearing would be warranted if Casitas were not operating the Ventura River Project in accordance with the Biological Opinion," or "if the Biological Opinion were clearly inadequate to protect public trust uses." In its amicus brief, the Board now offers the following conclusions about the issues before this court:

> The evidence in this case establishes that, prior to its construction and operation of the fish ladder, Casitas' diversions were harming imperiled instream fisheries, and that the bypass flows under the biological opinion were the minimum necessary to prevent this harm. Thus, the biological opinion does no more than mirror the restrictions that were already imposed on Casitas' water rights under background principles of California law. Consequently, there was and is no taking.

Such a pronouncement was of course made without the benefit of a hearing before the Board or without an opportunity for plaintiff to submit contradictory evidence and therefore cannot be credited here. We do, however, read the SWRCB's statements as an indication that the Board may well revisit this issue in the future.

falls below 17,000 acre-feet. Despite the mitigating impact such measures are intended to have on Casitas's water supply (and thus on Casitas's ability to deliver water to its customers), that contingency is reflected in neither party's estimates of water loss. (Mr. Spencer, for his part, explained that he had not attempted to estimate the effect of such drought mitigation provisions due to the lack of quantitative criteria.) In our view, however, such uncertainty merely underscores our conclusion that there is no injury—and thus no accrual of plaintiff's takings claim—until plaintiff suffers an actual reduction in beneficial use. See Northwest Louisiana, 446 F. 3d at 1292 (observing, in support of the conclusion that the claim did not accrue until some actual harm had occurred, that "the Corps might have elected to avoid the damages altogether").

IV.

Two final matters require our attention, both involving arguments raised by defendant to defeat plaintiff's takings claim. First, defendant maintains that the decision to construct a fish passage facility, the design of the facility, and the identification of the bypass flows necessary to operate the facility were all determinations made by Casitas that cannot be charged to the United States.[47] In support of this position, defendant observes that neither BOR nor NMFS required Casitas to take any particular action in response to the steelhead listing and that Casitas was free to pursue alternative procedures (e.g., the trapping and moving of the fish), to propose a different fish ladder design, and to construct a fish ladder in a different location. All of these alternatives, defendant asserts, were completely within Casitas's control and arguably would have resulted in less water loss. Indeed, in the case of locating a fish ladder on the east side of the diversion dam, for example, defendant maintains that such an alternative would have resulted in the fish bypass flows staying at all times within the active portion of the Ventura River, thereby undermining the Federal Circuit's conclusion that a per se takings analysis applies. See Casitas, 543 F.3d at 1295 (finding a per se takings analysis applicable on the ground that "the United States did not just require that water be left in the river, but instead physically caused Casitas to divert water away from the Robles-Casitas Canal and towards the fish ladder"). James Lecky, a long-time employee of NMFS with responsibility for ESA oversight, in fact testified at trial that Casitas

[47] This possibility appears to have been left open by the Federal Circuit when it assumed, only for purposes of the summary judgment motion then before it, that the government had required Casitas to build and operate the fish ladder. Casitas, 543 F.3d at 1282 ("For the purposes of this appeal, the government concedes that the BOR's May 2, 2003 directive advising Casitas that it was obligated to comply with the requirement of the BiOp compelled Casitas to: (1) construct a fish ladder facility . . . .").

"could have designed any number of facilities at this place, with any number of different configurations."

In addition, defendant observes that the biological opinion did not itself impose requirements on Casitas, but instead evaluated the efficacy of a proposal designed and submitted by Casitas in its final biological assessment. Further, defendant maintains that NMFS made no substantive change to that proposal. Defendant also points out that Casitas obligated itself to observe particular bypass flows unrelated to, and in one case in advance of, the biological opinion. In order to obtain a grant from the Coastal Conservancy, for instance, plaintiff contractually agreed to bypass a minimum flow of 50 cfs and then to maintain whatever flows NMFS set forth in its biological opinion. Similarly, in its June 27, 2003, streambed alteration agreement with CDFG, plaintiff acknowledged its state-law duty to ensure that "sufficient water shall at all times be allowed to pass downstream to maintain aquatic life below the dam pursuant to Fish and Game Code section 5937." Defendant thus argues that Casitas voluntarily undertook the construction of a particular fish facility with particular bypass flows and that any consequences of those decisions are not the responsibility of the United States. See, e.g., Norman v. United States, 429 F.3d 1081, 1089 (Fed. Cir. 2005) (finding that a physical takings analysis did not apply because the plaintiffs could have complied with the permit in other ways, and the Corps did not require the plaintiffs to convey the property to a third party).

The difficulty we have with defendant's argument is that it dramatically underplays the coercive effect of the ESA. See Bennett v. Spear, 520 U.S. 154, 169–70 (1997) (recognizing that a biological opinion has a "powerful coercive effect on the action agency" and observing that while "[t]he action agency is technically free to disregard the Biological Opinion and proceed with its proposed action, . . . it does so at its own peril"). Casitas's actions can hardly be construed as voluntary when they were in direct response to a federal listing, one that carried with it the very real prospect of criminal and civil liability for Casitas and its employees. See 16 U.S.C. §§ 1540(a), (b) (authorizing civil fines of up to $12,000 per violation and criminal penalties of up to $50,000 and/or imprisonment for one year). Moreover, to say that Casitas had discretion in the project it proposed is to ignore the fact that NMFS's actions implementing the ESA were the constant driving force behind Casitas's efforts to achieve an acceptable solution to the hazards that its water project allegedly presented to the steelheads' habitat. So long as plaintiff's response to the federal listing was reasonable (and there is nothing in the record to suggest that it was not), the consequences of that response are chargeable to the United States.[48]

[48] We find support for this conclusion in the basic principle contained in both contract and tort law that requires a party harmed by the actions of another to (continued...)

In the alternative, defendant argues that this court has no obligation to analyze this case as a physical taking, despite the Federal Circuit's pronouncement to that effect, because the Federal Circuit's decision was based on two erroneous presumptions: first, that California law recognizes a possessory right in water (rather than merely a usufructory right), thus attaching significance to the act of diversion itself; and second, that the water required by the fish ladder had been diverted from the Ventura River into the Robles-Casitas Canal.[49] Based on these assumptions, the Federal Circuit concluded that "once the water is in the [Robles-Casitas Canal], it is water that Casitas has diverted pursuant to its allotment. It thus has become the property of Casitas." Casitas, 556 F.3d at 1332. To the extent, however, that both the legal and factual underpinings of the Federal Circuit's decision are shown to be incorrect—that plaintiff has no independent possessory right to divert water distinct from the right to beneficial use and that the water used in the fish ladder never enters the Robles-Casitas Canal—defendant maintains that the Federal Circuit's characterization of this case as a per se taking is entitled to no deference. Defendant urges us instead to apply a modified takings analysis, or an exaction analysis, as set forth by the Supreme Court in Nollan v. California Coastal Comm'n, 483 U.S. 825 (1987), and Dolan v. City of Tigard, 512 U.S. 374 (1994).

In Nollan and Dolan, the Supreme Court addressed the question of whether the government could constitutionally require landowners to convey easements

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[48](...continued)
undertake "reasonable" efforts to mitigate the harm likely to be sustained. Restatement (Second) of Contracts § 350(2) (1979); Restatement (Second) Torts § 918(1) (1977). Significantly, the law does not require that such efforts at mitigation reflect the wisest course of action or adopt the one most beneficial to the wrongdoer. What is required instead is reasonableness of action judged in light of the circumstances prevailing at the time the problem arose. In re Kellett Aircraft Corp., 186 F.2d 197, 198–99 (3rd Cir. 1950). Viewed from this perspective, it does not matter that Casitas could have responded differently to NMFS's demands for improvement in the flow conditions affecting the steelheads' habitat; what matters only is that the solution Casitas chose—the construction of a fishway—was a reasonable response to the corrective actions demanded of it.

[49] Contrary to the Federal Circuit's assertion that the government "actively caused the physical diversion of water away from the Robles-Casitas Canal—after the water had left the Ventura River and was in the Robles-Casitas Canal—and towards the fish ladder," Casitas, 543 F.3d at 1291–92, defendant maintains that the water that enters the fish ladder is never completely diverted from the Ventura River and never enters the Robles-Casitas Canal. Under the current configuration, defendant contends, water instead enters the Robles-Casitas Canal only after it passes through the fish screens and through the canal control gate structure.

across their privately owned property in exchange for the granting of land-use development permits. In Nollan, 483 U.S. at 837, the first of the cases, the Court held that a city government could not condition a building permit on the granting of a public easement across a beachfront lot because there was no "essential nexus" between the legitimate state interest (defined by the city as maintaining the public's visual access to the ocean) and the condition imposed (requiring lateral public access across a private lot). In Dolan, 512 U.S. at 391, the Court in turn found that while an "essential nexus" existed between the legitimate state interest (flood and traffic control) and the condition imposed (the dedication of property for flood control and a pedestrian/bicycle path), the exaction nevertheless failed to pass constitutional muster because there was no "rough proportionality" between the condition and the projected impact of the proposed development. Nollan and Dolan thus put forth a two-prong test for analyzing the constitutionality of a land-use condition: (1) Is there an "essential nexus" between the condition imposed and a legitimate government purpose? And, if so, (2) is there a "rough proportionality" between the required dedication and the impact of the proposed development such that they are related both in nature and extent?

According to defendant, plaintiff's takings claim falls within this Nollan and Dolan rubric, with the government imposing a condition—the requirement that water be provided to operate the fish passageway—in exchange for an affirmative grant of regulatory permission—Casitas's authorization (via the incidental take provision of the biological opinion) to operate the water project without violating the ESA. In defendant's view, there is no question (1) that an essential nexus exists between the government's legitimate interest in protecting the fish and the flow criteria identified in the biological opinion, and (2) that the relatively modest amount of water Casitas is required to devote to fishway operations is roughly proportional to the public harms from the dam operations that the government is attempting to remedy. Defendant thus argues that under Nollan and Dolan the government is not liable for the taking of Casitas's water.

We cannot accept this argument. "When an appellate court has once decided an issue, the trial court, at a later stage of the litigation, is under a duty to follow the appellate court's ruling on that issue and is precluded from altering the appellate decision." United States v. Cirami, 563 F.2d 26, 32 (2d Cir. 1977) (citation omitted). We admit that it is difficult, conceptually, to think of a right to beneficial use as being physically taken, particularly when we have said that the takings claim does not accrue when the water is actually diverted (or, in this case, not diverted) but when the beneficial use is later invaded. Yet, in our original decision in this case, we characterized the taking as regulatory because it involved the government's restraint on an owner's use of property rather than a government takeover of property (either by physical invasion or by directing the property's use to its own needs). Casitas, 76 Fed. Cl. at 105–06. It was that conclusion that the Federal Circuit rejected on

appeal.[50] We therefore cannot presume that our holding here—defining plaintiff's property right as a right to beneficial use—would change the Federal Circuit's analysis.

Even if we were not bound by the Federal Circuit's holding, however, we have difficulty understanding how the situations presented in Nollan and Dolan are relevant to the instant case. The focus in Nollan and Dolan was not on whether the property owners should be compensated for the taking of their property under the Fifth Amendment, but whether the zoning and land-use process—an otherwise legitimate exercise of state authority—could be used to deprive those owners of their entitlement to just compensation. Indeed, the Nollan and Dolan decisions start with the presumption that such a requisition of private property for a public purpose, standing alone, would constitute a per se taking. Dolan, 512 U.S. at 384 (observing that "[w]ithout question, had the city simply required petitioner to dedicate a strip of land . . . for public use, rather than conditioning the grant of her permit to redevelop her property on such a dedication, a taking would have occurred," citing Nollan, 483 U.S. at 831). The question, then, was whether the conferring of a benefit—i.e., the granting of a building permit—obviated the need to pay just compensation. Dolan, 512 U.S. at 385 (explaining that "the government may not require a person to give up a constitutional right—here the right to receive just compensation when property is taken for a public use—in exchange for a discretionary benefit conferred by the government where the benefit sought has little or no relationship to the property").

It is this quid pro quo that is missing in the present case. Plaintiff did not seek any new or different use of its water license that may in turn have justified some reciprocal demand from the government. Rather, what we have here is an entirely one-sided proposition that begins with the government's demand that Casitas relinquish a portion of its existing water rights (at the risk of facing civil and criminal penalties for non-compliance that would force a shut-down of operations) and then continues with the government's seeking to absolve itself from a potential takings liability by holding out its approval of Casitas's compliance as evidence of an agreed-upon exchange. Nollan and Dolan, we believe, are therefore inapposite.

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[50] Defendant's argument is in fact a direct attack on the Federal Circuit's conclusion that the government's action in this case is not a regulatory taking. As defendant argued in its brief, "[t]he government action here—NMFS' and Reclamation's compliance with the regulatory process set forth in the ESA—is the very definition of a regulatory act. Plaintiff approached NMFS with a fish ladder proposal; NMFS offered its expertise to develop the proposal; and NMFS 'approved' that proposal." (Citation omitted.) Such an argument is appropriately the subject of a motion for rehearing—which defendant unsuccessfully sought—or of an appeal to the Supreme Court; it is not appropriate in a proceeding before this court.

CONCLUSION

For the reasons set forth above, the court concludes that plaintiff's takings claim is not ripe. Accordingly, the Clerk is directed to dismiss plaintiff's complaint without prejudice, to be refiled (without the payment of additional filing fees) if and when plaintiff's cause of action accrues consistent with this decision.

IT IS SO ORDERED.

s/John P. Wiese
John P. Wiese
Judge