

Filed: August 27, 1998

Nos. 93-84 L, 94-140 L, 94-141 L, 94-142 L,
94-143 L, 94-144 L, 94-145 L,
94-146 L, 94-147 L, 94-148 L,
94-149 L, 94-150 L, 94-151 L,
94-152 L (consolidated with 93-84 L),
94-153 L, 94-154 L,
94-155 L,
94-156 L, 94-157 L,
94-158 L,
94-159 L, 94-160 L,
94-161 L,
94-162 L, 94-163 L,
94-164 L,
and 94-165 L

WILLIAM D. BOLING INDIVIDUALLY,
WILLIAM D. BOLING, AS TRUSTEE OF THE
AGNES T. BOLING LIVING TRUST,
AND W. FRANK BOLING, ET AL.,

Plaintiff,

v.

* Statute of limitations --
Where landowners' takings
claims are based on erosion
found to have crossed onto
* their properties more
* than six years before the suits
* were those claims are time-
* barred. Held further, plaintiffs'

THE UNITED STATES,

Defendant.

- * allegations of negligence by
- * defendant do not automatically
- * remove claims from this
- * court's takings jurisdiction.

Held further, plaintiffs do not have independent property - right to be compensated for the costs of bank protection.

Thornwell F. Sowell of Sowell, Todd, Lafitte, Beard & Watson, L.L.C., Columbia, South Carolina, with whom was H.F. Bell, Chesterfield, South Carolina, for plaintiffs.

Alan Brenner, Department of Justice, Washington, D.C., for defendant.

OPINION ON RECONSIDERATION

FOLLOWING TRIAL⁽¹⁾

WIESE, Judge.

INTRODUCTION

On September 8, 1997, this court issued an opinion in the present case deciding, among other issues, that certain of the plaintiffs were barred by the statute of limitations from pursuing compensation under the Fifth Amendment for the Government's alleged taking, through an ongoing process of bank erosion, of portions of their individually-owned properties located along the Atlantic Intracoastal Waterway in Horry County, South Carolina. Boling v. United States, 38 Fed. Cl. 705 (1997). The ruling against the plaintiffs was based, in part, on a stipulation of the parties, adopting the opinion of the Government's expert, that erosion had crossed the boundary of defendant's easement, and had moved onto plaintiffs' properties, more than six years before the suits were filed. This stipulation, together with the court's rejection of the position that erosion losses were litigable as continuing claims, resulted in the decision against the plaintiffs.

Plaintiffs moved for reconsideration. The thrust of their motion was that they had stipulated to the correctness of the easement-crossing dates determined by the Government's expert -- and, correspondingly, had relinquished their right to a trial of that issue -- because of views expressed by the court during the final pretrial conference to the effect that plaintiffs' takings claims were continuing in nature and therefore involved cognizable demands to compensation for land lost to erosion within the six-year period preceding the initiation of the litigation.

Upon consideration of their motions, the court determined that plaintiffs indeed had been misled by the pretrial statements and that fundamental fairness therefore dictated that the judgments of dismissal entered against them be vacated and that they be relieved of the stipulation binding them to the conclusions set forth in the erosion studies performed by the Government's expert. An Order to this effect was entered by the court on November 10, 1997. The Order concluded by saying that "pending a trial and the subsequent entry of factual findings by the court, enforcement of the opinion entered in this matter on September 8, 1997, shall be suspended." 39 Fed. Cl. 252, 253 (1997). We now vacate the opinion entered on September 8, 1997, and enter this opinion in its stead.

The trial of plaintiffs' takings claims -- more particularly, a trial limited to the statute of limitations issue -- was conducted in Wilmington, North Carolina in May 1998. At the outset of the trial, plaintiffs advised the court that, of the nineteen properties covered by the court's initial decision holding the statute of limitations a bar to suit, only twelve remained in contention. As to the rest, plaintiffs acknowledged that erosion had made substantial inroads upon their individual properties prior to 1987, *i.e.*, more than six years prior to the time the actions were brought. Therefore, given the court's earlier rejection of the applicability of the continuing claim doctrine, plaintiffs conceded (but only for purposes of trial) that the claims associated with these remaining properties -- seven in all -- were time-barred.

Of the twelve properties thus identified for trial (collectively representing the ownership interests of some nine property owners), defendant conceded that one such property -- parcel 6N owned by Herbert and Hazel Bellamy (Docket No. 94-141 L) -- did not suffer any significant erosion prior to 1994, a conclusion based on a shoreline survey that the Government completed in that year.⁽²⁾ With this concession then, the testimony at trial focused on eleven properties. And as to each property, the single question is this: whether the bank erosion that has been occurring along the Atlantic Intracoastal Waterway since the waterway's completion in the late 1930s has crossed beyond the boundary line of defendant's easement and onto plaintiffs' properties and, if so, whether that crossing occurred more than six years prior to the commencement of suit in this court.

The following opinion, which is being issued in place of the September 8, 1997, decision, addresses this question. (See "The Statute of Limitations Trial," *infra*.) Aside from resolving this added question, however, the balance of the present opinion contains no new matter. That is, we retain here both the discussion and the rulings on the several issues previously raised by the parties that formed part of our original opinion of September 8, 1997.

Factual History

Plaintiffs each own property along the Atlantic Intracoastal Waterway ("the waterway") in Horry County, South Carolina. The waterway runs along the length of the eastern seaboard, and in most areas follows the course of natural waters occurring inside barrier islands. In some areas, however, artificial cuts were made in the land to continue the navigable path of the waterway. The section of the waterway at issue in this suit was constructed in the mid 1930s and early 1940s by defendant, acting through the Army Corps of Engineers. As part of the construction process, the state of South Carolina obtained rights-of-way from landowners owning property adjacent to the site. These areas were then granted by the state to defendant, and subsequently recorded in the records of Horry County. The rights-of-way granted by the landowners on either side of the waterway ranged from 160 to 190 feet in width, creating an overall easement across the waterway of 320 to 380 feet.

Documents of the Army Corps of Engineers ("the Corps") show that erosion has been occurring along the banks of the waterway since the waterway's construction. See Christopher P. Jones, P.E., EARTH TECH, Bank Erosion Study, Atlantic Intracoastal Waterway, Horry County, South Carolina 13-14 (1995) (discussing early Corps documents) [hereinafter "Bank Erosion Study"]. For example, in 1945, the Corps expressed concern over sedimentation resulting from erosion and caving of the waterway's banks, and in 1976, the Corps concluded that erosion had removed most of the monuments that marked the limits of defendant's right-of-way. See *id.*

In 1982, one of the plaintiffs in the present action, Loy Ree Ballam, filed suit in federal district court alleging that her land had been "taken" within the meaning of the Fifth Amendment due to erosion caused by waves on the waterway. See *Ballam v. United States*, 552 F. Supp. 390 (D.S.C. 1982), *rev'd*, 747 F.2d 915 (4th Cir. 1984), *vacated*, 474 U.S. 1078, *rev'd*, 806 F.2d 1017 (Fed. Cir. 1986). The trial court found that erosion had occurred on plaintiff's property up to and beyond defendant's easement line, and that the primary cause of the erosion was wave wash from vessels using the waterway. Further, the court found that "the erosion is a continuous process and unless remedial measures are taken, her property will continue to erode in the future." *Id.* at 392. The court awarded plaintiff \$644 for the value of the land taken, plus \$8160 for the cost of installing a revetment to protect the land from future erosion. See *id.* at 393.

After a somewhat convoluted procedural path,⁽³⁾ the Court of Appeals for the Federal Circuit reversed the trial court's award, holding that the plaintiff had "no property right to be safeguarded by the Army Engineers against collateral consequences of navigation improvements." *Ballam v. United States*, 806 F.2d 1017, 1022 (Fed. Cir. 1986). Two years later, the Federal Circuit revisited this legal pronouncement -- without revisiting the underlying factual circumstances -- in *Owen v. United States*, 851 F.2d 1404 (Fed. Cir. 1988). In that case, the Federal Circuit overruled *Ballam* for its failure to recognize "the existence of horizontal limits to both easements and navigational servitudes, beyond which government-caused erosion results in a taking under the Fifth Amendment." *Id.* at 1415 n.12. As such, once "the erosion resulting directly from the government's construction of the artificial waterway reached the land outside the easement right-of-way . . . the cost of revetments necessary to protect land outside the easement [should have been] borne by the government." *Id.* at 1415.

The Present Claims

Plaintiff Ballam has now been joined by 25 owners of other parcels of land adjoining the waterway in bringing suit against the U.S. Government pursuant to the Tucker Act, 28 U.S.C. § 1491 (1994 & Supp. II 1996), for the erosion-caused takings of their properties under the Fifth Amendment. Specifically, plaintiffs allege that "waves created by boat traffic, the ebb and flow of the tide and other natural actions of water in man-made canals, in addition to improper maintenance of the waterway, have caused and continue to cause erosion" to their land outside defendant's right-of-way. According to plaintiffs, this erosion "was foreseeable to the United States when it constructed the Waterway for use by boats, and the United States directly and proximately caused the erosion by failing to properly design and maintain the Waterway." Plaintiffs claim a right to compensation for the actual land taken by erosion, as well as the cost of revetments necessary to protect their land from future erosion.

Defendant has responded with a series of dispositive motions, which -- together with the May 5, 1998, statute of limitations trial -- form the basis for this opinion. In addition to its contention that 19 of the claims -- including the 11 contested at trial -- are barred by the six-year statute of limitations applicable to Tucker Act claims, defendant asserts that all of the suits should be dismissed on the grounds that their operative allegations sound in tort -- an area over which this court lacks subject-matter jurisdiction. Defendant has also moved for summary judgment against plaintiff Ballam on the grounds that, in light of her previous suit against defendant to recover for erosion damage, her claim is barred by the doctrine of res judicata. Finally, defendant has moved for summary judgment as to plaintiffs' claims for the cost of revetments, arguing that they have no property right to bank protection at the expense of defendant.

Discussion

I.

Tort vs. Taking

Defendant has moved under U.S.C.F.C. Rule 12(b)(1) to dismiss plaintiffs' claims on the grounds that "[t]he operative allegations of a taking of plaintiffs' lands as set forth in their pleadings sound in tort," and that therefore "this court lacks subject matter jurisdiction" over the claims. Defendant bases its argument on the Tucker Act, which establishes that this court "shall have jurisdiction to render judgment upon any claim against the United States founded either upon the Constitution, or any Act of Congress . . . not sounding in tort." 28 U.S.C. § 1491(a)(1) (1994).

The allegations raised by plaintiffs on which defendant's motion is based are found in paragraph 7 of plaintiffs' amended complaint, which reads:

Following construction of the Waterway, waves created by boat traffic, the ebb and flow of the tide and other natural actions of water in man-made canals, in addition to improper maintenance of the Waterway, have caused and continue to cause erosion to plaintiffs' property This erosion was foreseeable to the United States when it constructed the Waterway for use by boats, and the United States directly and proximately caused the erosion by failing to properly design and maintain the

Waterway so as to prevent the erosion. The erosion is a direct result of the defendant's improper design, construction, and maintenance of the Waterway and/or flows from an intentional act, the natural consequence of which is to take plaintiffs' property.

In determining whether to dismiss a case for lack of jurisdiction over the subject matter, the court must assume the validity of any undisputed allegations of fact made by plaintiffs. See Scheur v. Rhodes, 416 U.S. 232, 236 (1974); Poorbaugh v. United States, 27 Fed. Cl. 628, 631 (1993). Plaintiffs bear the burden of establishing jurisdiction by a preponderance of the evidence. Reynolds v. Army and Air Force Exch. Serv., 846 F.2d 746, 748 (Fed. Cir. 1988).

Defendant asserts that the language chosen by plaintiffs indicates that their allegations center on defendant's supposed negligence. As such, defendant argues, plaintiffs are in reality seeking recovery for tortious conduct by the Government's agents. The court disagrees. The fact that plaintiffs may consider certain aspects of the Government's conduct to be negligent does not automatically remove their claims from this court's takings jurisdiction. The question whether the invasion of property by the Government amounts to a taking as opposed to a tort does not turn on the care (or lack thereof) with which an authorized governmental action is pursued, but upon the extent of injury occasioned by the Government's action. "The essential inquiry is whether the injury to the claimant's property is in the nature of a tortious invasion of his rights or rises to the magnitude of an appropriation of some interest in his property permanently to the use of the Government." National By-Products, Inc. v. United States, 186 Ct. Cl. 546, 577 (1969).

In Bettini v. United States, 4 Cl. Ct. 755, 757 (1984), for example, the plaintiff brought a takings claim after a federally owned road collapsed onto his property and caused an ensuing mudslide. The plaintiff alleged that his losses were "directly attributable to . . . the acts and omissions of the defendant United States in its design, construction, maintenance and operation of [the road]," and that defendant had thereby taken the property without just compensation. Id. The defendant argued that these allegations sounded in tort, and that this court thus lacked jurisdiction over the claim.

The court in Bettini first noted that "[d]efendant's characterization of its actions as tortious . . . is not determinative of the nature of the invasion." Id. at 758. What needed to be determined, rather, "is whether the extent of the alleged invasion of plaintiff's rights in the property rises to the level at which compensation is required." Id. The court found that the collapse of earth across plaintiff's property, even though a one-time occurrence, was sufficient as alleged to survive defendant's motion to dismiss. See id. at 758, 761.

In this case, the erosion of plaintiffs' land, as alleged, is of a permanence and completeness such that labeling it anything less than a taking would be nonsensical. Their properties have not merely been subjected to a temporary but recurring flood, or to an unwelcome deposit of silt -- both situations which have been recognized as sufficiently permanent to merit compensation as takings. See Turner v. United States, 901 F.2d 1093, 1095 (Fed. Cir. 1990) ("[T]o show a servitude has been imposed through a taking by flooding, a plaintiff must prove that the land is subject to permanent or inevitably recurring floods"); Bettini, 4 Cl. Ct. at 759. Rather, the alleged erosion results in an outright loss *of* the land -- as opposed to damage *to* the land -- as it falls into the waterway. Thus, regardless of plaintiffs' portrayal of the actions that gave rise to the erosion, the nature of the alleged invasion by the Government is such that, if established, would clearly constitute a taking.

Defendant next latches on to plaintiffs' allegation that the taking is the result of an "intentional act." Because plaintiffs "have not and will not be able to point to any authority conferred by Congress upon the Corps of Engineers to intentionally cause erosion injuries to private property abutting the Waterway," defendant argues that they cannot maintain a claim in this court "to recover damages for the unauthorized acts of government officials." (Emphasis in original).

It is true that, "before a compensable taking can be found by the court, there must be some congressional authorization, express or implied, for the particular taking claimed." Southern California Financial Corp. v. United States, 225 Ct. Cl. 104, 108 (1980). However, to be considered "authorized," the taking need only be "a natural consequence of Congressionally approved measures," or else result from "the good faith implementation of a Congressional Act." NBH Land Co. v. United States, 217 Ct. Cl. 41, 44 (1978). Further, in evaluating a takings claim, the actions of the defendant cannot be characterized as unauthorized merely because they may have been "mistaken, imprudent, or wrongful" Eyherabide v. United States, 170 Ct. Cl. 598, 606 (1965), or even because they are later found to be "contrary to law." Del-Rio Drilling Programs, Inc. v. U.S., No. 97-5055, 1998 WL 321272 (Fed. Cir. June 18, 1998).

In this case, plaintiffs do not allege -- and need not show -- that defendant intentionally constructed the waterway so as to erode plaintiffs' adjoining land; rather, plaintiffs allege -- and very well might show -- that defendant intentionally constructed the waterway, and a natural consequence of that construction was the erosion of plaintiffs' adjoining land. Given that the waterway's construction was authorized by Congress in the River and Harbors Act of 1930, see Ballam v. United States, 806 F.2d 1017, 1018 (Fed. Cir. 1986), the alleged taking was likewise authorized. As such, plaintiffs' complaint falls clearly within this court's takings jurisdiction. Defendant's motion to dismiss for want of subject-matter jurisdiction is denied.

II.

The Statute of Limitations Trial

In order to invoke this court's jurisdiction, plaintiffs have the burden of showing that their actions were filed within six years of the time their claims first accrued. 28 U.S.C. § 2501 (1994). See Creppel v. United States, 33 Fed. Cl. 590, 594 (1995) (citing Soriano v. United States, 352 U.S. 270, 273 (1957)) ("The statute of limitations is jurisdictional in the Court of Federal Claims"); Broughton Lumber Co. v. Yeutter, 939 F.2d 1547, 1550 (Fed. Cir. 1991); Hart v. United States, 910 F.2d 815, 817 (Fed. Cir. 1990). A claim accrues, within the meaning of section 2501, "when all the events have occurred which fix the liability of the Government and entitle the claimant to institute an action," Oceanic S.S. Co. v. United States, 165 Ct. Cl. 217, 225 (1964), and "the plaintiff was or should have been aware of their existence." Hopland Bank of Pomo Indians v. United States, 855 F.2d 1573, 1577 (Fed. Cir. 1988). Thus, the court must first determine at what point plaintiffs became entitled to sue defendant for a taking of their property under the Fifth Amendment.

Until erosion crossed the boundary of defendant's easement and began to affect a plaintiff's particular parcel of land, that plaintiff had no grounds on which to base a takings claim under the Fifth

Amendment.⁽⁴⁾ See, e.g., Ballam v. United States, 806 F.2d 1017, 1023 (Fed. Cir. 1986) ("[The] argument [that] the cause of action accrued whenever Mrs. Ballam had reason to know that erosion on the waterway was going to be a problem. . . hardly requires to be refuted: anticipation that land in future will wash away if nothing is done is not accrual"). The timeliness of a claim therefore depends on whether the action was filed within six years of the date erosion first crossed the Government's easement line and encroached the plaintiffs' property. Although plaintiffs had originally stipulated to the crossing dates calculated by defendant's expert, this court permitted plaintiffs to withdraw from that stipulation and agreed to hear evidence as to the timeliness of their claims. The May 5, 1998, trial followed.

The principal trial evidence in this case centered on the testimony provided by defendant's expert, Dr. Timothy Kana, a coastal geologist, who was charged with the task of determining when erosion first crossed the easement line of the respective properties. Using 1988-1994 as the relevant period (corresponding to the six-year limitations period immediately preceding the filing of the claims here in 1994)⁽⁵⁾, Dr. Kana's analysis resulted in a division of the properties into three categories: category #1 encompassed those properties that were encroached prior to 1988 (thus involving claims that defendant deemed to be time-barred); category #2 encompassed properties encroached between 1988 and 1994 (hence involving claims acknowledged to have been timely-brought); and category #3 encompassed properties not-yet-encroached as of November 1994 (thus comprising claims viewed as unripe).

Plaintiffs accepted seven of Dr. Kana's claim classifications but challenged the remaining twelve. Of the claims contested -- Bellamy (Docket No. 94-141 L), Beachwood (Docket No. 94-144 L), Kingsport (Docket No. 94-145 L), River Oaks (Docket No. 94-149 L), Edge tracts 1, 2 and 3 (Docket No. 94-153 L), Permenter (Docket No. 94-156 L), Ward (Docket No. 94-160 L), Vereen tracts 1 and 2 (Docket No. 94-163 L), and Willard (Docket No. 94-164 L) -- Dr. Kana placed all but one⁽⁶⁾ in the first category -- properties encroached prior to 1988.

In order to categorize a particular property, Dr. Kana (i) considered the extent of shoreline encroachment shown in a 1994 Corps of Engineers land survey (referred to by the parties as the "Ground Truth Survey"), (ii) compared the total land-loss depicted in that survey with erosion rates that he had separately calculated for the properties in question (pursuant to a methodology we describe below), and (iii) from that side-by-side comparison, drew conclusions as to whether the erosion recorded beyond the easement line could have occurred within the relevant time period (the preceding six years). Thus, for example, if the land survey depicted an encroachment of 60 feet beyond the easement line as of 1994, and erosion had been calculated to progress at an average rate of 3 feet per year, Dr. Kana would conclude that encroachment of the property had occurred prior to 1988; hence placing the property into category #1. (At a rate of 3 feet per year, it would have taken 20 years for the erosion to have traveled 60 feet, thus placing the time of crossing of the easement line sometime around 1974.) Conversely, to reach a conclusion in plaintiffs' favor, one would have to find that erosion traveled at the rate of 10 feet per year in order to uphold the timeliness of a claim involving a property exhibiting 60 feet of erosion beyond the easement line as of 1994.

To determine the rate at which the waterway had suffered bank erosion since its construction in 1939, Dr. Kana relied on a series of aerial photographs taken in 1939, 1952, 1958, 1968, 1973, 1983, 1989 and 1993. By identifying topographic features common to each of these photographs -- bridges and road intersections, for example -- Dr. Kana was able to establish a set of fixed coordinates that in turn allowed him, through use of a computer digitization process, to superimpose all of the photographic data onto a single master map with a uniform scale. The resulting master map showed the waterway's banks

as depicted in each of the photographs, with the progressive recession of the banks that was observable from the photographs signifying the ongoing process of shoreline erosion.

Dr. Kana next divided the master map with transects -- lines of measurement drawn perpendicular to the waterway at 50-foot intervals -- that extended from the center-line of the waterway to the shoreline. Using these transects, Dr. Kana was able to chart the rate of erosion by determining, first, the average length of the transects for a particular year (e.g. 1939), then, the average length of the transects for a subsequent year (e.g. 1952), and, finally, by dividing the difference between the averages (signifying the change in feet) by the number of years that had elapsed between the two successive photographs.

Dr. Kana's analysis of the aerial photography yielded two results: a long-term erosion rate calculated by dividing the amount of land lost to erosion by the length of time passed; and a depiction, presented in graph form, of the time period in which the erosion was likely to have crossed the easement line. The latter was illustrated by plotting both the average length of the transects for a particular year and the length of the longest transect for that year on a graph whose vertical axis was marked in feet (*i.e.*, distance) and whose horizontal axis was marked in years (*i.e.*, time). The easement line was depicted as a horizontal line extending across the graph from the 160-foot y-axis coordinate.⁽⁷⁾ The graph could thus be used to predict the approximate year in which erosion crossed the easement line by identifying the points at which the mean and maximum transect curves intersected the 160 foot easement line.

Plaintiffs object to Dr. Kana's analysis on two grounds. They contend, first, that the process of establishing bank locations and crossing dates from aerial photography is subject to the possibility of significant error -- error too substantial to permit the establishment of a date of crossing any more precise than one falling sometime within a thirty-year margin. Second, plaintiffs argue that the long-term erosion rates calculated by Dr. Kana (with which, incidentally, they agree) have no bearing on the rate of erosion in the short term, and that short-term rates, particularly ones within the relevant six-year period, were often many times greater than the long-term rates.

In his testimony, Christopher P. Jones, plaintiffs' expert witness (who, like Dr. Kana, is also a coastal engineer), underscored the impact of this potential for error by comparing the crossing dates depicted on Dr. Kana's graphs with crossing dates that he (the witness) had calculated using Dr. Kana's data but assuming what he described as a conservative error margin of 10 feet.⁽⁸⁾ Mr. Jones' results showed potential crossing periods that extended as much as eight years to either side of the dates shown by Dr. Kana's graphs, thus making it equally likely, in Mr. Jones' estimation, that an easement-crossing recorded on the graph as a 1986 event could, in fact, have occurred at any point between 1978-1994. Mr. Jones therefore concluded that it was impossible, given the potential for error in deriving topographic details from aerial photographs, to determine a crossing date with any greater specificity.

Mr. Jones then calculated -- again relying on Dr. Kana's data -- short-term erosion rates for the contested properties. Through these calculations, the witness attempted to demonstrate that, due to the episodic nature of erosion, the rates of erosion measured over shorter intervals -- five or ten years, for example -- exceeded long-term rates by up to a factor of five. He therefore concluded that the appropriate measure of erosion rates for the period 1988-1994 were the higher, short-term rates he had calculated, rather than the longer-term rates relied upon by Dr. Kana.

In evaluating plaintiffs' criticism of Dr. Kana's approach, the court offers the following observations. We begin by noting that Mr. Jones' critique of the aerial photographs and their use here as a data source, though well-taken, does nothing to undermine the conclusions Dr. Kana drew from that methodology.

Dr. Kana himself freely conceded that the possibility of optical distortions in aerial photographs, together with the potential for error in using such photographs to develop a series of chronological maps tracing changes in land features, could potentially give rise to a 30-year margin of error if the crossing dates were determined solely by the position of the banks in the photos. It is crucial to note, however, that Dr. Kana did not rely on the aerial photographs to establish erosion-crossing dates, but, rather, erosion *rates*. Neither the errors inherent in the aerial photographs nor errors in the mechanics of using those photographs would significantly affect the calculated long-term erosion *rates* because any accumulated miscalculation in the number of feet of land lost to erosion would be distributed over the entire 54-year photographic record, thus transforming an error even as large as 50 feet into an increase of no more than one foot per year (a negligible increase when considering whether 40 to 70 feet of erosion could have occurred within a six-year time period). Because Dr. Kana relied on the aerial photographs simply to derive erosion rates -- rates largely unaffected by the photography's shortcomings -- the admitted errors in the photographic process and in the mechanics of the data derivation do not compromise Dr. Kana's conclusions.

More problematic than the aerial photography, however, is the application of long-term rates to fix the location of the shoreline in the short-term. Everyday experience suggests that a short-term erosion rate could, indeed, exceed a long-term erosion rate by a dramatic margin. A severe storm, for instance, might occasion the upheaval of a tree whose roots form part of the bank structure, thus causing a significant loss of embankment (as much as 10 feet in some instances) from a property ordinarily subject to a more benign yearly erosion loss of no more than a foot per year. In addition, the testimony of several landowners suggests that increased boat traffic on the waterway has increased the rate of erosion to the point that a fifty-year average may not adequately reflect present-day conditions. Thus, while it may be impossible, in the absence of a 1988 ground survey, to reconstruct the actual location of the bank in 1988, plaintiffs contend that the long-term erosion rate is neither the best nor most accurate indicator of the bank's position during the period in question.

While we do not doubt the landowners' testimony that the banks of their properties seem to be eroding at a faster rate as a result of increased marine traffic on the waterway, nor call into question Mr. Jones' contention that localized erosion rates for a single year can reach magnitudes well beyond the long-term average, nevertheless, we are unwilling to reject Dr. Kana's findings on these grounds. The fact that erosion may have had an unusually severe impact on a single land point does not compromise Dr. Kana's conclusions because -- as Dr. Kana testified -- he did not characterize an area as having been "encroached" if the erosion that occurred there affected only an isolated portion of the shorefront. Nor does the claimed overall increase in erosion rates during the period 1988 to 1994 alter Dr. Kana's results. By Mr. Jones' own calculations, short-term erosion rates over the lengths of the individual properties reached no higher than 5 feet per year -- a rate which, though indeed three to four times greater than long-term erosion rates (which, for the properties in question, generally fell between 1 and 2 feet per year), still would not explain how substantial encroachment -- on the order of 30 feet or more -- could have occurred within six years' time.⁽⁹⁾

Under Dr. Kana's framework, even those properties that had experienced a mass wasting of land were classified as category #3 (not-yet encroached), if the loss that occurred involved only a single location and was not representative of the general trend of erosion (defined, by Dr. Kana, as affecting at minimum ten percent of the property). Moreover, Dr. Kana restricted his category #1 classification (the time-barred claims) to those situations where the extent of the erosion evident by 1994 was seen to be too great to have occurred in the prior six years, even under Mr. Jones' assessed accelerated rates.

Ultimately, the court agrees with plaintiffs' contention that it is difficult, if not impossible, to determine exactly when erosion crossed the easement line.

Fortunately, however, we need not pursue such an inquiry here. It is enough simply to see whether the easement line had been encroached prior to 1987. To the extent that erosion crossed the easement line before, and in most cases, significantly before, 1987, the actual date of encroachment becomes irrelevant to our inquiry. We need only ask whether the leeway Dr. Kana built into his calculations -- how close his estimates bring us to a possible post-1987 crossing -- is sufficient to allay any misgivings about the uncertainty of the process. We conclude that, in virtually all cases, that leeway was vast.

Properties whose encroachment measured between 40 to 80 feet by 1994 can with confidence be said to have been encroached prior to 1987. A contrary result would require a sustained erosion rate of 6 to 11 feet per year, not simply with respect to a single point on the shoreline, but with respect to the overall trend of the shoreline. Such numbers are simply untenable. Mr. Jones himself testified that the short-term erosion rates exceeded the long term rates only by a factor of five.

Having extensively reviewed the maps, surveys and data provided by both parties, the court adopts Dr. Kana's findings as to the Beachwood property (Docket No. 94-144 L), the Edge properties, tracts 1, 2 and 3 (Docket No. 94-153 L), the Permenter property (Docket No. 94-156 L), the Funderburk/Ward property (Docket No. 94-160 L), the Vereen property, tract 1 (Docket No. 94-163 L) and the Willard property (Docket No. 94-164 L) on the grounds that the erosion each of these properties had suffered by 1994 was too extensive to have occurred entirely within the preceding six-year period.

We cannot, however, reach the same conclusion with respect to the Kingsport property (Docket No. 94-145 L), the River Oaks property (Docket No. 94-149 L) or the Vereen property, tract 2 (Docket No. 94-163 L). For the reasons explained below, the court is not convinced that Dr. Kana's categorization of these properties offers the same degree of reliability as his other conclusions. We begin with the River Oaks property.

The 1994 Ground Truth Survey -- the shoreline survey relied on by Dr. Kana both to assess the amount of erosion that had occurred through 1994 and to verify the erosion rates that he had derived from the aerial photographs -- did not cover the River Oaks property. Hence, Dr. Kana formed his conclusions regarding the categorization of this property strictly on the basis of the admittedly less reliable transect measurements, without the benefit of the Ground Truth survey to verify his conclusions.

It is not, however, the relative weakness in methodology which prevents us from accepting Dr. Kana's classification of the River Oaks property. It is instead the testimony of another witness -- and the acknowledgment by Dr. Kana -- that the portion of the property located landward of the easement line was encroached as early as 1939 not by erosion, but by a man-made embayment (known as the "Pine Island Cut") built in conjunction with and to facilitate the waterway's construction. As the testimony demonstrates, the fact that a bank has been *excavated* to a point beyond the easement line does not answer the question of whether *erosion* has crossed the easement line by that date. And Dr. Kana's data reveals that the embayment, rather than being subject to erosion, has actually moved seaward since the embayment's construction -- filled in by the accretion of sediment from the waterway.

The only erosion in evidence on the River Oaks property, then, is found to the south of the Pine Island Cut. Although the erosion appears to have crossed the property's easement line, the extent of that encroachment is sufficiently limited to have occurred easily within the six years prior to the filing of the claim. Accordingly, we conclude that the action filed for the River Oaks property is not time-barred.

As to the Vereen property, Dr. Kana classified tract 2 (Docket No. 94-163 L) as having been encroached prior to 1988 based on his belief that bulkheads which bordered the property on each side -- both constructed approximately along the easement line sometime before 1988 -- indicated the extent to which erosion had advanced in this particular locale by the date of the bulkheads' construction. Thus, Dr. Kana concluded that the erosion observed on the Vereen property in a 1992 survey -- extending roughly six feet over the easement line -- must have encroached upon that property at about the same time the bulkhead construction was undertaken, *i.e.*, sometime before 1988.

The problem we have with this analysis is the impreciseness of the data on which it is based. To say with any reasonable certainty that the six feet of erosion that was observable on the Vereen property as of 1992 evidences an encroachment that actually began prior to 1988, one would have to have as a starting point information more specific than just a general understanding that the bulkheads were constructed approximately along the easement line sometime prior to 1988. A change in either of these assumptions -- for example, a construction date closer to or even after 1988 or a construction line seaward of the easement line rather than on the easement line -- could well place the beginning of erosion on the Vereen property sometime after 1988; hence a timely claim.

Given this uncertainty, and given further that the charted rate of erosion that Dr. Kana had calculated for this property (through use of the aerial photographs) came to 2.21 feet per year, we think the better outcome here is to say that the minimal erosion apparent on this property as of 1992 -- six feet -- did not begin earlier than 1988. Hence, we deem this claim to have been timely commenced.

As with the Vereen claim, Dr. Kana based his conclusion about the Kingsport property on the location of a bulkhead built in 1957. Because the bulkhead was constructed landward of the easement line, Dr. Kana presumed that the easement line had already been encroached as of the date of the bulkhead's construction, some thirty years before the filing of the present suit. According to the testimony of another witness, however, the landward placement of the bulkhead was not dictated by erosion, but by a decision to construct a boat slip, thereby undermining the conclusion that *erosion* had encroached the easement line as of 1957.⁽¹⁰⁾ In addition, the fact that the neighboring banks are depicted on the 1994 Ground Truth Survey as very close to or even seaward of the easement line confirms that the location of the shoreline in 1957 could not have been the result of erosion.

We are confident in concluding, however, that any erosion Kingsport *has* suffered affected the property well within the limitations period. That conclusion is based not only on the position of the neighboring banks and the relatively limited encroachment found there, but on the fact that the erosional forces which destroyed the earlier bulkhead -- undermining the property behind it and necessitating the construction of a second retaining wall built several feet behind the first -- did not become noticeably visible until the early 1990s or require construction of the second wall until 1995. Accordingly, we find the Kingsport claim to be timely.

Exceptions to the Statute of Limitations

Despite this court's conclusion that 14 of the claims in issue accrued outside the limitations period, plaintiffs maintain that these claims may nonetheless be heard. They assert first that uncertainties in the legal validity of their asserted property rights and fluctuations in the Corps' bank protection policy justify the tolling of the statute of limitations and/or the postponement of their claims' accrual altogether. Alternatively, plaintiffs argue that, based upon a theory of continuous taking, they are not completely barred from recovery even if the statute of limitations has run against portions of their claims. The court will address each of plaintiffs' arguments in turn.

A. Equitable Tolling Based on the Interim Unavailability of a Legal Remedy

First, plaintiffs argue that equitable principles warrant tolling the statute of limitations in this case. They base this assertion primarily on their perception that "[u]ntil the Corps' policy regarding erosion was fixed with the issuance of the decision in Owen v. United States, 851 F.2d 1404 (Fed. Cir. 1988), it would have been futile for plaintiffs to bring a claim for a taking." As plaintiffs see it, this futility stems from a Corps policy regarding bank protection that was in a "constant state of flux," as well as the earlier rejection by various courts of the property rights plaintiffs now assert. According to plaintiffs, before Owen was decided, "it was uncertain . . . whether the plaintiffs had suffered a taking and/or whether the courts would enforce the plaintiffs' property rights outside the government's easement." Plaintiffs assert that "[t]his uncertainty stayed accrual of [their] claims." And because plaintiffs filed their suits within the six years following the issuance of Owen, they argue that none of the claims are time-barred.

As discussed briefly above, in Ballam v. United States, 806 F.2d 1017, 1022 (Fed. Cir. 1986), the court ruled that the Government had the "right to open the [waterway] to navigation without incurring any liability for measures thereby made necessary to prevent erosion." Because the Government was seen to enjoy the same rights on the waterway within its easement as it would on a natural waterway, the court noted that "[i]t hardly is pretended that the government would be responsible to landowners on natural navigable water for erosion caused by public works which do not themselves impinge on such upland but only cause water to do so by waves or currents causing erosion." Id. at 1021. In other words, the landowner did not have the "right to have the Army Engineers construct or finance revetments or other structures to inhibit erosion," id. at 1023, when that erosion is caused by Government activity within the limits of its easement.

In Owen v. United States, 851 F.2d 1404 (Fed. Cir. 1988), the plaintiff sought compensation for losses incurred when the Corps of Engineers' dredging of a river resulted in erosion that undermined her land and house. At the trial level, the Court of Federal Claims had held that the plaintiff was precluded from recovery because, under Ballam, as well as Pitman v. United States, 198 Ct. Cl. 82 (1972), the Government's dominant navigational servitude immunized its dredging activities -- all of which occurred below the river's high-water mark -- from suit. The Federal Circuit reversed, and in doing so

overturned both Pitman and, more importantly for our inquiry, Ballam.

At the outset, the Owen court rejected the view that "no compensation can ever be owed for the consequential effects of construction activities to further navigation undertaken solely within the boundaries of a river bed subject to the navigational servitude." Owen, 851 F.2d at 1412. The court noted that "the practical effect of our decision [in Ballam] was to grant to the government the very 'right to erode' which it allegedly did not claim, and left Mrs. Ballam's property rights in her land outside the easement unenforceable." Id. at 1414-15. According to Owen, the error in Ballam was the court's "failure to recognize the existence of horizontal limits to both easements and navigational servitudes, beyond which government-caused erosion results in a taking under the Fifth Amendment." Id. at 1415 n.12. "[O]nce the erosion resulting directly from the government's construction of the artificial waterway reached the land outside the easement right-of-way," the Owen court concluded, "the cost of revetments necessary to protect land outside the easement [should have been] borne by the government." Id. at 1415. The court overruled Ballam to the extent that it allowed "the navigational servitude to reach fast land above and outside the bed of navigable water." Id. at 1416.

As noted above, the claim in Ballam and plaintiffs' present claims both arise from the same set of factual circumstances. While the erosion has affected land outside the easement right-of-way, the Corps' activity which caused the erosion occurred within the easement. Further, like the plaintiff in Ballam, these plaintiffs too seek both compensation for land lost, as well as the cost of bank protection necessary to prevent future losses. As such, plaintiffs argue that, under the prohibitive holding of Ballam, "it would have been futile . . . to bring a claim for a taking."

Even assuming that Ballam's legal pronouncement so clearly foreclosed plaintiffs' asserted property rights that the statute of limitations could justifiably be tolled in this case,⁽¹¹⁾ the period of tolling does not bring any otherwise time-barred plaintiffs within the statute of limitations. The Federal Circuit did not issue its decision until November 28, 1986, and the finality of the decision was not firmly established until the Supreme Court denied certiorari on April 20, 1987. See Ballam, 806 F.2d at 1017, cert. denied, 481 U.S. 1014 (1987). Owen was issued the following year, on July 18, 1988. See Owen, 851 F.2d at 1404. Thus, whatever effect Ballam had on the validity of plaintiffs' claims, that effect lasted less than fifteen months—a period too insignificant to impair Dr. Kana's conclusions given the broad latitude (in favor of the property owners) that underlies his time-of-crossing determinations. Thus, even if the court were to rule the statute of limitations tolled for that roughly one-year period, plaintiffs still are time-barred.

B. The Corps' Bank Protection Policy

Plaintiffs attempt to extend the period of tolling to a more helpful length by emphasizing what they describe as "the uncertain policy of the Corps of Engineers with respect to protecting the plaintiffs' properties from erosion outside the government's easement." Until Owen was issued, according to plaintiffs, the Corps' policy fluctuated as to its recognition of an obligation to provide bank protection to landowners threatened by erosion on the waterway. Plaintiffs argue that, as long as the Corps' policy

was surrounded by uncertainty, "it was uncertain . . . whether the plaintiffs had suffered a taking." As such, plaintiffs assert that their takings claims did not even accrue for statute of limitations purposes until the Corps' policy was clarified in the wake of Owen. While this approach theoretically would bring plaintiffs within the six-year statute of limitations, its conceptual underpinnings do not correspond with any sound theory of accrual of which the court is aware.

Plaintiffs recite a chronology of events involving the Corps which they assert evidences a bank protection policy so uncertain as to justify postponement of their claims' accrual. The chronology begins in 1979, when, according to documents obtained by plaintiffs, the Corps' policy recognized that "[w]hen erosion occurs and exceeds the limits of the acquired right-of-way, there is an obligation to protect the adjacent properties," and that such protection could be achieved "by either revetment works or through acquisition of additional property rights." In 1985, the Corps completed a rip-rap bank protection project along the waterway adjacent to the Briarwood and Forest I Subdivisions in Horry County, South Carolina. On February 20, 1987, however, in the wake of the decision in Ballam v. United States, 806 F.2d 1017 (Fed. Cir. 1986), the Corps rescinded the 1979 policy and directed that any requests for bank protection of private property be handled in a manner consistent with Ballam. On March 3, 1987, Lieutenant Colonel Stewart H. Bornhoft, a District Engineer for the Corps, wrote Edward T. Fennell (who is not a plaintiff in this case) as follows:

For many years we had a policy that when erosion occurs along a fastland cut of the [waterway], there is an obligation to protect adjacent properties. As a result of the recent Ballam case, that policy has been rescinded.

The position we now hold is that where erosion is caused by wave action from vessels using the [waterway], those vessels are responsible for their damages. Adjacent landowners should take prudent measures to protect their own property against erosion.

On October 19, 1987, Stewart H. Bornhoft, a Lieutenant Colonel in the Corps, wrote Senator Ernest Hollings, explaining that "[p]rior to the Ballam decision, the Corps had a policy which allowed for construction of erosion control structures along a fastland cut under certain conditions." But in the aftermath of Ballam, according to Bornhoft's letter, "the Corps considers that it no longer has authority to conduct erosion control projects," and that, while "[w]e are concerned about this [erosion] problem throughout the waterway . . . the Ballam decision has removed our authority to provide a solution." In 1988, the Federal Circuit decided Owen, overruling relevant parts of Ballam, and in 1989, according to plaintiffs, the Corps reinstated its 1979 bank protection policy.

Defendant does not dispute the validity of the Corps' memoranda from which plaintiffs derived this chronology; however, defendant argues that, if any such policy existed, it was unknown to plaintiffs before they brought suit in this court, and remained so until they obtained the memoranda in 1993 under the Freedom of Information Act, 5 U.S.C. § 552 (1994 & Supp. II 1996). According to defendant, no policy was ever publicly announced by the Corps. And no plaintiff ever demanded bank protection from the Corps pursuant to such a policy prior to suit. To the contrary, the Federal Circuit's opinion in Ballam relates that the plaintiff in that case sought bank protection from the Corps before filing her suit, but was informed that the Corps "is without authority to undertake works to control bank erosion on private lands bordering the Waterway." 806 F.2d at 1019. Further, according to defendant, the bank protection performed by the Corps in the Briarwood Subdivision was brought about as a result of the intervention of a United States Senator. "Such political pressure brought to bear upon the Corps by the highest

federal official in the State," asserts defendant, "could hardly be characterized by the plaintiffs as some long-standing policy of the Corps."

Assuming that the memoranda obtained by plaintiffs accurately reflect a recognition by the Corps of an obligation to protect the banks of landowners adjacent to the waterway, plaintiffs have not shown that they were aware of such a policy before they filed suit. Without such a showing, the existence of the policy is irrelevant. Unless plaintiffs refrained from suing based on their knowledge of the Corps' bank protection policy, the substance of the policy -- or any fluctuations thereto -- could not possibly be a justification for their delay in bringing suit. That is not to say, however, that plaintiffs' vague awareness of some nebulous Corps policy would automatically postpone the accrual of their claims. A promise of bank protection by the Corps would have to be specifically directed toward plaintiffs and sufficiently definite in detail to justify their failure to bring suit. See Applegate v. United States, 25 F.3d 1579, 1583-84 (Fed. Cir. 1994) (holding that statute of limitations did not bar action where erosion process was gradual, and Government promised relief by enacting legislation authorizing construction of sand transfer plant). In any event, the court need not decide whether the alleged Corps policy was of a nature that would justify deferring suit, as there has been no showing that plaintiffs were aware of the policy at the time of its alleged existence. As such, the fluctuations in the Corps' policy are not a proper basis for either tolling the statute of limitations, or postponing the accrual of plaintiffs' claims.

C. Continuing Claim Doctrine

Even assuming that the statute of limitations began to run as soon as the erosion expanded beyond the Government's easement onto plaintiffs' properties, and that nothing has tolled the statute's running in the meantime, plaintiffs assert that they are still entitled to recover for erosion that has occurred within the six years prior to their filing of suit. They base this assertion on the "continuing claim" doctrine, which holds that when a defendant owes a continuing duty, a new cause of action arises each time the defendant breaches that duty. See Cherokee Nation of Oklahoma v. United States, 26 Cl. Ct. 798, 803 (1992). The doctrine "prevents the statute of limitations from protecting an offender in an ongoing wrong, and thereby avoids claims that would be unactionable simply because they commenced prior to the statutory period." Id.

Plaintiffs rely on Mitchell v. United States, 10 Cl. Ct. 787 (1986), *modifying* 10 Cl. Ct. 63 (1986), in which Native Americans brought suit against the Federal Government for its mismanagement of tribal forests, based on the Government's sale of timber for less than its market value, and on the Government's failure to replant trees as required by statute. On reconsideration, plaintiffs argued that the continuing claim doctrine should apply to their claims for the regeneration of trees. This court agreed, ruling that:

[T]he series of alleged regeneration wrongs arose not just as the cutting progressed from stand to stand, but also with respect to each individual tree. That is, the existence of a continuing duty to regenerate means that on each day [defendant] failed in its duty to regenerate a given stand, there arose a new cause of action. And those causes of action which arose in the six-year limitations period may be sued upon.

Id. at 788.

According to plaintiffs, the reasoning of Mitchell applies equally to this case, in which the waterway "has eroded land continuously since its construction, but the plaintiffs did not have clear notice that the erosion had commenced or would continue beyond the scope of the easement they had granted to the government." Further, the "gradual nature of the erosion process necessarily makes it difficult to determine when the taking or injury first occurred to the plaintiffs' land," and "the degree of damages is equally uncertain, due to the nature of the erosion." These factors give rise to a Mitchell-type situation, plaintiffs argue, in which "plaintiffs' claims accrue with each injury to their land, e.g., each falling of a part of their land into the waterway."

For further support, plaintiffs look to Hilton v. Duke Power Co., 254 F.2d 118 (4th Cir. 1958), in which the court stated that:

If the injury to neighboring lands is caused by negligence, or if the cause is abatable, then there arises a continuing cause of action, and while limitations begin to run at the occurrence of the first actual damage, the landowner may at any time recover for injury to his land which occurred within the statutory period.

Id. at 122. In light of the fact that plaintiffs' claims center on their alleged rights to have the Corps construct or finance erosion-inhibiting structures on their land, and because the Corps completed a rip-rap project at other subdivisions adjacent to the waterway, plaintiffs argue that the cause of defendant's alleged taking is abatable. As such, they argue that they can recover for injury to their lands occurring within the six-year period prior to their filing of suit in February 1993.

Defendant responds by correctly pointing out that neither Mitchell v. United States, 10 Cl. Ct. 787 (1986), nor Cherokee Nation of Oklahoma v. United States, 26 Cl. Ct. 798 (1992), involved takings claims. In Mitchell, this court recognized that the defendant, the Bureau of Indian Affairs, had a "duty to maintain each tract of Indian timberland in a state of continuous productivity and to plant whenever necessary to achieve that end." Id. at 788. That duty, this court concluded further, "was a continuing one." Id. Similarly, in Cherokee Nation, the court characterized the continuing claim doctrine as one in which the "defendant owes a continuing duty." 26 Cl. Ct. at 803 (citing Mitchell, 10 Cl. Ct. at 788). In that case, the court ruled that the Government held a riverbed in trust for an Indian tribe, and faced ongoing responsibility for trespasses to that land. See id. In the case at hand, defendant did not incur a similar "continuing duty" toward plaintiffs merely by constructing the waterway. Even assuming that defendant can be held liable for the value of plaintiffs' land lost to erosion, defendant has never borne a continuing duty to prevent the erosion from occurring in the first place. While defendant may choose to construct revetments in order to avoid the costs of future liability, it was under no pre-existing obligation to do so. (See section III, infra.)

Plaintiffs' reliance on Hilton v. Duke Power Co., 254 F.2d 118 (4th Cir. 1958) is similarly misplaced. In that case, the plaintiff sued for damages incurred when the defendant's dam caused an overflow of water and silt onto his land, rendering 200 acres unsuitable for cultivation. See id. at 120. The trial court had overturned a jury's award of damages to the plaintiff, ruling as a matter of law that, because the silting

had begun to injure the plaintiff's land outside the six-year period set forth in the applicable statute of limitations, the plaintiff's recovery was barred. See id. at 121. The Fourth Circuit reversed, holding that "[i]t would impose an obligation too stern . . . to declare as a matter of law that . . . a plaintiff is always charged at the first appearance of damage with a foresight of its ultimate spread." Id. at 126. However, the court cautioned:

[I]f an actual injury amounting to a taking occurs, suit must be brought within the period of limitations by the property owner not only for the actual injury that has occurred but also for any additional injuries which were foreseeable and estimable when the taking occurred. Recovery may subsequently be had for additional injuries which were not foreseeable and estimable when the taking occurred if suit is brought within the period of limitations after such injuries have been realized.

Id. at 123.

The nature of the alleged taking in this case differs from the flooding in Hilton. In Hilton, the damage resulted from a chain of events: a lake formed behind the defendant's dam, which caused silt to accumulate in an adjoining creek and its branches; the silting gradually diminished the creek's banks; and eventually the creek and its branches overflowed onto plaintiff's land. See id. at 120. The court in Hilton emphasized the complex factual nature of estimating the prospective injury under those circumstances, noting that "[w]hether the ponding of water in a given locality is or is not reasonably certain to cause the adjoining lands to become unhealthful as a place to live depends upon many and varied facts and circumstances. . . . in some cases it does, and in others it does not." Id. at 122 (quoting Lockhart Power Co. v. Askew, 96 S.E. 685, 687 (S.C. 1918)).

In this case, by contrast, plaintiffs faced a slow, methodical -- but unmistakably progressive -- erosion of their banks. As plaintiffs' own expert witness, Christopher P. Jones, concluded, using plaintiff H.C. Ward's property as an example: "Using field survey and sediment data for the region, engineering calculations show the top of the bank can be expected to erode an additional 120 feet, or more, before any chance of natural stabilization will occur." Bank Erosion Study at 37. While the precise rate of erosion may have been unclear to plaintiffs themselves, there should have been no doubt that erosion was occurring. Further, there was no question as to the severity or permanence of damage that the affected land would suffer, as there was in Hilton, for here plaintiffs were losing their land altogether as it fell into the waterway.

Plaintiffs' continuing claim argument also invokes the Hilton court's statement that continuing claims arise when the cause of an injury to land is "abatable." 254 F.2d at 122. However, contrary to plaintiffs' assertion -- and defendant's concession -- that the erosion in this case is abatable, the possibility that erosion's effects might be mitigated through bank protection does not mean that the cause of plaintiffs' injury is "abatable" under Hilton. This conclusion is inescapable in light of the continuing claim doctrine's purpose, which is to prevent "a statute of limitations from shielding an offender in an *on-going* wrongdoing." Hatter v. United States, 38 Fed. Cl. 166, 180 (1997) (emphasis added). If a cause of injury is abatable, then it is within defendant's control to stop it; under those circumstances, a defendant's decision to allow the injurious force to continue should, and does, give rise to a perpetually renewing cause of action. In Hilton, by contrast, the cause of the injury was the dam, which the court labeled "a permanent, nonabatable cause." Id. at 122-23. This recognition flows logically from the nature of the mechanisms involved -- *i.e.*, once the dam was constructed, the flooding was not a matter

within the Government's discretion, but rather was an unavoidable consequence of the dam's operation.

Likewise, in this case, the construction of the waterway itself set in motion the erosive forces that eventually resulted in the taking of plaintiffs' land. Unless defendant were somehow to stop all wave action -- whether caused by tides, wind, or boats -- the erosion process would continue to affect properties along the waterway. The fact that plaintiffs could protect their banks with revetments may mean that the *effects* of the erosion are abatable, but it does not render the *cause* abatable. In Hilton, the plaintiff could conceivably have constructed a dike to restrain the creek from overflowing his land. Further, in this vein, practically every erosion or flooding case involves damage that theoretically could have been prevented through proper structural protections. To hold that the possibility of bank protection gives rise to a continuing claim would mean that the statute of limitations would almost never cut off the claim of a plaintiff who had suffered a physical taking. With its statement regarding abatement, the court in Hilton was not aiming to revolutionize the law of takings; rather, it was merely recognizing that, when the Government has ongoing power and discretion to put an end to the cause of an injury to land, each decision not to do so becomes the infliction of a new injury that rightly gives rise to a new cause of action.

Plaintiffs have failed to convince the court that their claims' accrual should be postponed, that the statute of limitations should be tolled for any meaningful period of time, or that, under the continuing claim doctrine as developed through existing case law, they are entitled to recover for damage occurring within the six years prior to suit. What the court's analysis up to this point has not addressed is a more fundamental question, one which posed the greatest obstacle to the court's resolution of this case. It stems from defendant's argument that a plaintiff's takings claim accrued as to his entire parcel of property as soon as the erosion crossed the easement, despite the fact that the erosion, at that point, would have affected mere inches of his property.

As defendant conceded at oral argument, no tangible interest in the uneroded property -- such as title -- passed to the Government at the time the erosion crossed the easement. "The usual rule," as formulated by the Supreme Court, "is that if the United States has entered into possession of the property prior to the acquisition of title, it is the former event which constitutes the act of taking." United States v. Dow, 357 U.S. 17, 22 (1958). Here, however, defendant had entered into physical possession of only a small portion of plaintiffs' land at the time of accrual. Yet, once six years passed from the moment of encroachment, the landowner would be foreclosed forever from recovery for any land to be eroded -- even land presently untouched by the erosion process. In other words, the question presents itself, how can a landowner lose his or her right to sue for a taking of land when that land has not yet been taken?

To begin to answer this question, it must be understood that the "proper focus, for statute of limitations purposes, 'is upon the time of the [defendant's] acts, not upon the time at which the consequences of the acts became most painful.'" Fallini v. United States, 56 F.3d 1378, 1383 (Fed. Cir. 1995) (quoting Delaware State College v. Ricks, 449 U.S. 250, 258 (1980)). According to the Supreme Court, "[p]roperty is taken in the constitutional sense when inroads are made upon an owner's use of it to an extent that, as between private parties, a servitude has been acquired either by agreement or in course of time." United States v. Dickinson, 331 U.S. 745, 748 (1947). It is tempting conceptually to sub-divide a given landowner's property into minute units of land, the erosion of each giving rise to a separately accruing cause of action. A landowner would thereby be entitled to recover for any losses suffered in the six years previous to the filing of suit. As it stands, however, with a single point of accrual for the entire parcel, once any portion of the property is lost to erosion and the statute of limitations runs with respect to it,

the Government essentially acquires a right to erode the balance of the landowner's property. Separately accruing causes of action would lend a degree of theoretical sensibility to this aspect of takings law, as the landowner would be entitled to postpone suit for a taking of his or her property until the Government actually took the particular property in question. The court has concluded, however, that the attractiveness of such an approach is starkly outweighed by the chaotic takings regime to which it would lead.

If a landowner could, as a general proposition, recover for the loss of land suffered within the six years prior to suit, the statute of limitations would be rendered nearly meaningless in the erosion context, where losses occur gradually, over periods of time far greater than six years. Despite the fact that damages could be recovered for only that immediate six-year period, the liability inquiry would center on past events involving years far removed from those in suit. For example, if the taking of each piece of land gave rise to a separate cause of action, nothing would prevent a landowner from seeking damages for losses less than six years old, even if the waterway causing the erosion was constructed 200 years ago, and even if, many years before filing suit, the landowner could have forecast accurately the future rate of erosion. Such a potentiality is exactly what the statute of limitations is designed to avoid:

Statutes of limitation . . . in their conclusive effects are designed to promote justice by preventing surprises through the revival of claims that have been allowed to slumber until evidence has been lost, memories have faded, and witnesses have disappeared. The theory is that even if one has a just claim it is unjust not to put the adversary on notice to defend within the period of limitation and that the right to be free of stale claims in time comes to prevail over the right to prosecute them.

Order of Railroad Telegraphers v. Railway Express Agency, Inc., 321 U.S. 342, 348-49 (1944).

There is no way to translate plaintiffs' position -- that they should be allowed to recover for damages to their land occurring within the six years prior to suit -- into a workable rule that would maintain the practical discipline instilled into takings litigation by the statute of limitations. At oral argument, plaintiffs sought to limit the applicability of their position by emphasizing the uniqueness of their circumstances: the difficulty in accurately fixing the moment at which the erosion crossed the easement; the allegedly shifting Corps policy regarding bank protection; and the uncertainty of the legal merits of their cause of action under Ballam. However, the court has -- with respect to 16 of the claims -- accepted the validity of Dr. Kana's conclusions regarding the dates of encroachment; there has been no showing that, prior to suit, plaintiffs were aware of any Corps policy regarding bank protection; and the tolling effect of Ballam is so limited in duration as to be irrelevant. Taken separately, then, these factors are insufficient to affect the court's statute of limitations inquiry; taken together, they do not merit the court's carving out a new and potentially dangerous exception to the timeliness requirements of takings law.

Here, because no taking of property had yet occurred at the time of defendant's acts -- i.e., construction of the waterway -- plaintiffs' claims did not accrue until the erosion crossed onto plaintiffs' property. See Ballam v. United States, 806 F.2d 1017, 1023 (Fed. Cir. 1986) ("[A]nticipation that land in future will wash away if nothing is done is not accrual"). But once that initial taking manifested itself on a particular plaintiff's land, the plaintiff's entire claim for erosion loss stemming from defendant's construction of the waterway accrued at that moment -- whether that loss had already occurred or merely could be forecasted to occur. While conceptually troubling to the court, this result is the only acceptable outcome in a takings regime that must maintain a sense of order and finality:

Statutes of limitation find their justification in necessity and convenience rather than in logic. They represent expedients, rather than principles. They are practical and pragmatic devices to spare the courts from litigation of stale claims, and the citizen from being put to his defense after memories have faded, witnesses have died or disappeared, and evidence has been lost. . . . They are by definition arbitrary, and their operation does not discriminate between the just and the unjust claim, or the voidable and unavoidable delay.

Chase Securities Corp. v. Donaldson, 325 U.S. 304, 314 (1945) (citation omitted).

Accordingly, the court holds that those plaintiffs whose land suffered encroachment by erosion more than six years before bringing suit in this court are time-barred from recovery, and their claims must be dismissed.

III.

Cost of Bank Protection as a Property Right

Given the court's disposition of defendant's motions to dismiss, there remain four claims by plaintiffs over which this court has jurisdiction. These claims are now subject to defendant's motion for summary judgment⁽¹²⁾ -- more properly termed a motion for partial summary judgment -- based on defendant's contention that plaintiffs, as a matter of law, have no Fifth Amendment property right to bank protection at the expense of defendant.

In plaintiffs' amended complaint, they seek "actual damages by way of just compensation for a taking under the Fifth Amendment to the United States Constitution," as well as "actual damages measured by the reasonable costs of revetments or other erosion control structures to prevent further erosion of plaintiffs' property." It is this second element of damages which is the subject of defendant's summary judgment motion.

Under U.S.C.F.C. Rule 56(c), summary judgment is appropriate if the filings show that "there is no genuine issue as to any material fact and that the moving party is entitled to a judgment as a matter of law." Here, defendant argues that "the facts and circumstances surrounding the subject claims for bank protection bear a virtually identical resemblance to those present in the Federal Circuit decision in Ballam v. United States, 806 F.2d 1017 (Fed. Cir. 1986)," and that the court in that case "concluded that Ballam did not have a property right to have suitable revetments constructed at public expense to protect her land." Because, according to defendant, an analysis of plaintiffs' claim of a right to the cost of revetments would hinge on the interpretation of the easement grant document -- an issue of law determined by the court in Ballam -- "no evidence could be adduced at trial that would be of any aid in determining this claim."

The Federal Circuit in Ballam reasoned that, "[i]f Mrs. Ballam has a property right to shift such costs [of revetments to the Government], it must result from the language of [the easement grant]." 806 F.2d at 1021. The court agreed with the Fourth Circuit's earlier finding that the grant said nothing expressly on the subject, but that there was a strong implication that "the rights and duties between the government and adjacent landowners who granted easements for artificial parts of the waterway, should be the same as those that existed along natural parts of the waterway." Id. Based on this implication, the court went on to note that "[i]t hardly is pretended that the government would be responsible to landowners on natural navigable water for erosion caused by public works which do not themselves impinge on such upland but only cause water to do so by waves or currents." As a result, the court accepted the Government's contention that "it has a right to open the [waterway] to navigation without incurring any liability for measures thereby made necessary to prevent erosion." Id. at 1022.

Plaintiffs respond to defendant's argument by focusing on Owen v. United States, 851 F.2d 1404 (Fed. Cir. 1988), which overruled Ballam to the extent that Ballam allowed "the navigational servitude to reach fast land above and outside the bed of navigable water." Id. at 1416. Plaintiffs assert that "Owen overturned Ballam fundamentally, both as to the earlier case's findings of fact and rulings of law." Rather than following the approach of Ballam, as defendant suggests, plaintiffs argue that, under Owen, the court should look to the approach of United States v. Dickinson, 331 U.S. 745 (1947). According to Owen, "Dickinson instructs that the cost of revetments necessary to protect land outside the easement be borne by the government." Owen, 851 F.2d at 1415. In addressing the measure of damages, the Dickinson Court had ruled that "[i]f the resulting erosion which, as a practical matter, constituted part of the taking was in fact preventable by prudent measures, the cost of that prevention is a proper basis for determining the damage." 331 U.S. at 751.

The court agrees with plaintiffs that, in the wake of Owen, the approach taken by the Dickinson Court is much more helpful than the approach of the court in Ballam. See Owen, 851 F.2d at 1414 ("Regrettably, the relevance of Dickinson to the situation in Ballam went unrecognized by this court"). The court adopts the Ballam court's finding regarding the content of that plaintiff's easement grant, see 806 F.2d at 1021, and presumes that the easement grants for the tracts related to these lawsuits are similar in content to the one examined in Ballam. Beyond that factual finding, however, the reasoning of Owen so eviscerated the core of Ballam's analysis that, while portions of the opinion may technically remain valid law, its underlying analysis is of dubious pertinence to these cases.

Even so, defendant is correct in asserting that plaintiffs do not have an independent right to compensation for the cost of bank protection. As expressed in Dickinson, 331 U.S. at 751, and by the trial court in Ballam, 552 F.Supp. 390, 393 (D.S.C. 1982) (awarding plaintiff "the cost of protecting her land from future erosion"), the award of such costs is merely a method by which damages may be measured -- i.e., an alternative to holding the Government liable for the value of all land to be lost in the future. If revetments are less expensive than the value of the land forecast to be lost, then the Government may discharge its liability by bearing the cost of bank protection; if the value of land to be lost is less than the cost of revetments, however, plaintiffs cannot force the Government to pay the higher amount. Plaintiffs do not have a right to revetments *per se*. Accordingly, the court will grant defendant's motion for partial summary judgment. This determination does not preclude plaintiffs, in the end, from recovering the cost of revetments as damages; it merely signifies that they are not entitled to such an award as a separate property right.

Conclusion

1. The court holds that plaintiffs' complaints contain allegations giving rise to potentially valid takings claims, and thus denies defendant's motion to dismiss for lack of subject-matter jurisdiction, filed February 16, 1995.

2. The court holds that the claims related to sixteen of the properties are barred by the statute of limitations. Specifically, the Clerk is hereby instructed to dismiss the following complaints for lack of timeliness: Docket No. 94-140 L; Docket No. 94-143 L; Docket No. 94-144 L; Docket No. 94-146 L; Docket No. 94-147 L; Docket No. 94-150 L; Docket No. 94-152 L (consolidated with Docket No. 93-84 L); Docket No. 94-153 L; Docket No. 94-154 L; Docket No. 94-156 L; Docket No. 94-160 L and Docket No. 94-164 L. In addition, there being no just cause for delay, the Clerk is instructed to enter judgment dismissing Docket No. 94-155 L (but only as to tract 1) and Docket No. 94-163 L (but only as to tract 1) pursuant to Rule 54(b).

3. The Clerk is also instructed to dismiss the following complaints without prejudice, as the properties to which they relate had not -- according to defendant's stipulation -- suffered erosion as of the date the claims were filed: Docket No. 94-141 L; Docket No. 94-142 L; Docket No. 94-148 L; Docket No. 94-151 L; Docket No. 94-157 L; Docket No. 94-158 L; Docket No. 94-159 L; Docket No. 94-161 L; Docket No. 94-162 L and Docket No. 94-165 L. However, if erosion has since occurred on the properties, plaintiffs' counsel shall promptly notify this court of that change in circumstance so that the affected actions may be reinstated on the court's docket.

4. The court additionally concludes that the following complaints are timely brought: Docket No. 94-145 L; Docket No. 94-149 L; Docket No. 94-155 L (but only as to tract 2) and Docket No. 94-163 L (but only as to tract 2).

5. Further, the court holds that plaintiffs do not have a separate property right to compensation for the costs of bank protection, and thus grants defendant's "motion for [partial] summary judgment" addressing the right to bank protection, filed July 15, 1994.

6. Finally, the court denies as moot defendant's "motion for summary judgment" based on the doctrine of res judicata, filed June 16, 1994.

No costs are awarded.

1. This opinion replaces the opinion entered in this case on September 8, 1997, that is reported at 38 Fed. Cl. 705 (1997).
2. In addition to the Bellamy property, defendant reaffirmed, at trial, its earlier acknowledgment that, as of 1994, the following properties had experienced no significant erosion:

Barefoot Phase II Limited Partnership, Parcel No. 1S (Docket No. 94-142 L)

Carl K. Rust, II, Parcel No. 15N (Docket No. 94-148 L)

Linnie E. Gore by E.E. Gore, P.A., Parcel No. 16N (Docket No. 94-151 L)

Margaret W. Thompson, Parcel No. 21N (Docket No. 94-157 L)

Adoline Ward, Parcel No. 20N (Docket No. 94-158 L)

Carrie Lee Ward, Parcel No. 23N (Docket No. 94-159 L)

C. A. White, Parcel No. 25N (Docket No. 94-161 L)

A. William Thompson, Parcel No. 17N (Docket No. 94-162 L)

J. Carlton Bell, as Personal Representative of the Estate of W.E. Gore, Jr., Ellen G. Lewis, William E. Gore, III and Amanda G. Earnhart, Parcel Nos. 14N (tract I) and 14S (tract II) (Docket No. 94-165 L).

Finally, defendant identified the property jointly owned by H.F. Bell, Joseph E. Bell, L.J. Bell, Ralph C. Bell, Retha C. Bell, Clarice B. Ritter, Doris B. Gump, Esther B. Boyd, and Loy Ree B. Ballam, Parcel No. 5 N (tract II) (Docket No. 94-155 L), as having experienced erosion which first began within six years of the filing of their suit. Hence, defendant acknowledges that, as to this property, the action was timely commenced.

3. On appeal from the district court, the Court of Appeals for the Fourth Circuit reversed, holding that, due to the easement granted to defendant, plaintiff's legal stance was the same as if her property were located adjacent to a natural river, and thus the erosion inflicted by passing ships was deemed insufficient to render defendant liable for a taking. See *Ballam v. United States*, 747 F.2d 915, 919 (4th Cir. 1984). The Supreme Court vacated that judgment and remanded with directions to transfer to the

Court of Appeals for the Federal Circuit, see 474 U.S. 1078 (1986), which had been given exclusive appellate jurisdiction over such cases. See 28 U.S.C. § 1295(a)(2) (1994).

4. The court has considered -- and rejected -- defendant's assertion, offered in its closing arguments, that the limitations period began when erosion occasioned the first loss of land -- as early as 1939 -- even though the land at issue was located within the Government's easement. Although the property burdened by the Government's right-of-way was owned by plaintiffs, the easement, by its terms, included the right to wash away any land located within the right-of-way. Thus, not until the property landward of the Government's easement line became subject to erosion did the Government overstep the property rights it had acquired and, correspondingly, not until that time can it be said to have effectuated a taking. Affirmation of this position is to be found in the appellate court's observation regarding the same point in Owen v. United States, 851 F.2d 1404, 1415 (Fed. Cir. 1988).

5. As we have noted in the text, Dr. Kana identified the years 1988-1994 as the relevant period, under our six-year statute of limitations, for assessing the timeliness of the instant suits. Although that period is correct when viewed against the 1994 docket filing dates of the claims in issue, use of those dates overlooks this court's Order of February 17, 1994. In that Order, which was issued in response to defendant's motion asserting an administrative need for separate complaints to facilitate the proper handling of the litigation, plaintiffs were directed to file individual complaints to stand in place of plaintiffs' then-pending multi-party complaint. In directing this substitution for administrative purposes, the court specifically declared that each plaintiff was to retain his or her initial filing date, *i.e.*, either February 4, 1993 (in the case of the four original plaintiffs W. Frank Boling, W.E. Gore, Jr., George Rayford Vereen, and Hope Willard) or November 30, 1993 (in the case of all remaining plaintiffs). Based on the court's Order then, the correct period for assessing the timeliness of the claimants' suits should be 1987-1993 rather than 1988-1994.

As it turns out, however, this difference in limitations period is not critical either to the integrity of Dr. Kana's methodology or to his conclusions because, as we later point out in the opinion's text, the amount by which the contested properties had eroded as of 1994 was too extensive -- given the erosion rates Dr. Kana had calculated -- to ascribe any meaningful difference to this one-year step-back in the limitations period.

6. At trial, Dr. Kana amended his earlier characterization of the Bellamy property, changing it from category #1 to category #3, and in doing so, eliminated that property from contention.

7. The easement typically spanned a total distance of 320 feet. (In some instances, the overall width was 380 feet.) Thus, in the typical case, the easement line fell 160 feet landward from the waterway's centerline.

8. The 10 foot measurement represents the amount by which the average measured length of the transects may be off for a particular year -- a result, perhaps, of misaligning that year's aerial photo on the master map.

9. In addition, Dr. Kana testified that short-term rates, when measured over longer distances, tend toward longer-term rates because the effects of mass wasting -- though dramatic -- are isolated in scope and affect only a small percentage of the shoreline. Thus, while the erosion rate for a particular point may approach 15 feet per year in the wake of a storm, that loss, when averaged over the entire shorefront, will have little effect on the overall erosion rate.

10. At no time did Dr. Kana testify that the encroachment seen on the various properties was specifically the result of erosion. He defined his task merely as establishing the period in which a particular property had been *encroached*, regardless of the cause or nature of that encroachment.

11. The appropriateness of tolling under these circumstances is by no means obvious. As the Supreme Court explained in Irwin v. Department of Veterans Affairs, 498 U.S. 89, 96 (1990) (footnotes omitted):

Federal courts have typically extended equitable relief only sparingly. We have allowed equitable tolling in situations where the claimant has actively pursued his judicial remedies by filing a defective pleading during the statutory period, or where the complainant has been induced or tricked by his adversary's misconduct into allowing the filing deadline to pass. We have generally been much less forgiving in receiving late filings where the claimant failed to exercise due diligence in preserving his legal rights.

12. Defendant's second motion for summary judgment -- filed against plaintiff Loy Ree Ballam (Docket No. 94-140 L) and based on the doctrine of res judicata -- is now moot given that plaintiff Ballam's suit is to be dismissed under the statute of limitations.