

Case Nos. 16-2301, 16-2373

**In the United States Court of Appeals
for the Federal Circuit**

ST. BERNARD PARISH GOVERNMENT,
GWENDOLYN ADAMS, HENRY ADAMS,
CYNTHIA BORDELON, STEVEN BORDELON,
STEVE'S MOBILE HOME AND RV REPAIR, INC.,
EDWARD ROBIN, SR., EDWARD "PETE" ROBIN, JR.,
BRAD ROBIN, ROBIN SEAFOOD COMPANY, INC.,
ROBIN YSCLOSKEY DEVELOPMENT #1, LLC,
ROBIN YSCLOSKEY DEVELOPMENT #2, LLC,
ROBIN YSCLOSKEY DEVELOPMENT #3, LLC,
ROBIN YSCLOSKEY DEVELOPMENT #4, LLC,
ROCCO TOMMASEO, TOMMOSO "TOMMY" TOMMASEO,
ROCKY AND CARLO, INC., PORT SHIP SERVICE, INC.,
and Other Owners of Real Property in St. Bernard Parish or
the Lower Ninth Ward of the City of New Orleans,
Plaintiffs–Cross-Appellants,

v.

UNITED STATES,
Defendant–Appellant.

*Appeals from the United States Court of Federal Claims,
Case No. 1:05-cv-01119-SGB, Judge Susan G. Braden*

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UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

St. Bernard Parish, et al.

v.

United States of America

Case No. 16-2301, 16-2373

CERTIFICATE OF INTEREST

Counsel for the:

☐ (petitioner) ☐ (appellant) ☐ (respondent) ☒ (appellee) ☐ (amicus) ☐ (name of party)

See attachment for listing of names parties represented by me

certifies the following (use "None" if applicable; use extra sheets if necessary):

1. Full Name of Party Represented by me	2. Name of Real Party in interest (Please only include any real party in interest NOT identified in Question 3) represented by me is:	3. Parent corporations and publicly held companies that own 10 % or more of stock in the party
Rocky and Carlo, Inc.	None	None
Port Ship Service, Inc.	None	None
Robin Seafood Company, Inc.	None	None
Robin Yscloskey Development #1, LLC	None	Robin Capital Holdings, LLC
Robin Yscloskey Development #2, LLC	None	Robin Capital Holdings, LLC
Robin Yscloskey Development #3, LLC	None	Robin Capital Holdings, LLC
Robin Yscloskey Development #4, LLC	None	Robin Capital Holdings, LLC

4. The names of all law firms and the partners or associates that appeared for the party or amicus now represented by me in the trial court or agency or are expected to appear in this court (**and who have not or will not enter an appearance in this case**) are:

See attachment

Mar 24, 2017

Date

/s/ Vincent J. Colatriano

Signature of counsel

Please Note: All questions must be answered

Vincent J. Colatriano

Printed name of counsel

CC: (see attached certificate of service)

Reset Fields

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

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certifies the following (use "None" if applicable; use extra sheets if necessary):

1. Full Name of Party Represented by me	2. Name of Real Party in interest (Please only include any real party in interest NOT identified in Question 3) represented by me is:	3. Parent corporations and publicly held companies that own 10 % or more of stock in the party
Steve's Mobile Home & RV Repair Inc.	None	None
Rocco Tommaseo	None	None
Tommoso "Tommy" Tommaseo	None	None
Steven Bordelon	None	None
Cynthia Bordelon	None	None
Gwendolyn Adams	None	None
Henry Adams	None	None

4. The names of all law firms and the partners or associates that appeared for the party or amicus now represented by me in the trial court or agency or are expected to appear in this court (**and who have not or will not enter an appearance in this case**) are:

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Mar 24, 2017

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UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

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☐ (petitioner) ☐ (appellant) ☐ (respondent) ☒ (appellee) ☐ (amicus) ☐ (name of party)

See attachment for listing of names parties represented by me

certifies the following (use "None" if applicable; use extra sheets if necessary):

1. Full Name of Party Represented by me	2. Name of Real Party in interest (Please only include any real party in interest NOT identified in Question 3) represented by me is:	3. Parent corporations and publicly held companies that own 10 % or more of stock in the party
Edward Robin, Sr.	None	None
Edward "Pete" Robin, Jr.	None	None
Brad Robin	None	None
The St. Bernard Parish Government	None	None

4. The names of all law firms and the partners or associates that appeared for the party or amicus now represented by me in the trial court or agency or are expected to appear in this court (**and who have not or will not enter an appearance in this case**) are:

See attachment

Mar 24, 2017

Date

/s/ Vincent J. Colatriano

Signature of counsel

Please Note: All questions must be answered

Vincent J. Colatriano

Printed name of counsel

CC: (see attached certificate of service)

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UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

St. Bernard Parish, et al. v. United States of America

Case No. 16-2301, 16-2373

**ATTACHMENT TO APPELLEES’
CERTIFICATE OF INTEREST**

List of Named Parties Represented:

Pursuant to Federal Circuit Rule 47.4, appellees provide the following list of every named party represented in the case:

1. Gwendolyn Adams
2. Henry Adams
3. Cynthia Bordelon
4. Steven Bordelon
5. Steve’s Mobile Home & RV Repair, Inc.
6. Edward Robin, Sr.
7. Edward “Pete” Robin, Jr.
8. Brad Robin
9. Robin Seafood Company, Inc.
10. Robin Yscloskey Development #1, LLC
11. Robin Yscloskey Development #2, LLC
12. Robin Yscloskey Development #3, LLC
13. Robin Yscloskey Development #4, LLC
14. Rocco Tommaseo
15. Tommoso “Tommy” Tommaseo
16. Rocky and Carlo, Inc.
17. Port Ship Service, Inc.
18. St. Bernard Parish Government

In addition, the court below certified the following class for purposes of liability:

A class consisting of owners of real property or “immovable property,” under Louisiana State law as of August 28, 2005, located in St. Bernard Parish, Louisiana and/or the Lower Ninth Ward of the City of New Orleans, Louisiana, subject to the temporary taking of such property, as a result of increased storm surge, during Hurricane Katrina and/or “inevitably recurring” flooding during subsequent hurricanes and severe storms, as a result of the United States Army Corps of Engineers’ construction, expansions, operation, and failure to maintain the Mississippi River-Gulf Outlet, until it was permanently closed on July 1, 2009. “Owners of real property” does not include the United States government or agencies or instrumentalities thereof.

For purposes of the just compensation inquiry, the court below also certified two subclasses of the above liability class.

Corporate Disclosure Statement:

Pursuant to Federal Rule of Appellate Procedure 26.1 and Federal Circuit Rule 47.4, appellees provide the following information regarding nongovernmental corporate parties to this proceeding:

Corporate Party	Parent Corporation	Publicly Held Corporations Owning 10% or More of Stock
Rocky and Carlo, Inc.	None	None
Port Ship Service, Inc.	None	None
Robin Seafood Company, Inc.	None	None
Robin Yscloskey Development #1, Inc.	Robin Capital Holdings, Inc.	None
Robin Yscloskey Development #2, Inc.	Robin Capital Holdings, Inc.	None
Robin Yscloskey Development #3, Inc.	Robin Capital Holdings, Inc.	None
Robin Yscloskey Development #4, Inc.	Robin Capital Holdings, Inc.	None
Steve's Mobile Home and RV Repair, Inc.	None	None

Lawyers/Law Firms Appearing Below:

Pursuant to Federal Circuit Rule 47.4, appellees provide the following information about the law firms and the partners and associates who appeared for the named plaintiffs below or are expected to appear in this court:

Cooper & Kirk, PLLC:	Charles J. Cooper Michael W. Kirk Vincent J. Colatriano Brian W. Barnes William C. Marra Michael Weitzner Brian Koukoutchos
Mumphrey Law Firm, LLC:	J. Wayne Mumphrey Carlos A. Zelaya, II
Law Office of Tonry & Ginart, LLC:	Michael C. Ginart, Jr. Richard A. Tonry
Law Office of John H. Musser, IV:	John H. Musser, IV
F. Gerald Maples, P.A.:	F. Gerald Maples Carlos A. Zelaya, II Stephen M. Wiles Todd Campbell

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STATEMENT OF RELATED CASES

Pursuant to Federal Circuit Rule 47.5, Appellees–Cross-Appellants state that no other appeal in or from the same civil action or proceeding in the lower court or body was previously before this or any other appellate court.

The principal appeal in this case is docketed as No. 16-2301. The cross-appeal is docketed as No. 16-2373.

Congress authorized the Mississippi River-Gulf Outlet (“MRGO”), a 76-mile waterway designed, constructed, operated, and maintained by the Army Corps of Engineers (“Corps”), in the 1950s to shorten the transit distance between the Port of New Orleans and the Gulf of Mexico. From the beginning, it was understood that the construction of the channel as designed by the Corps would likely lead to catastrophic flooding in Greater New Orleans. Indeed, as early as 1957, the Corps was warned that “[d]uring times of hurricane conditions, the existence of [MRGO] will be an enormous danger to the heavily populated areas of the Parish due to the rapidity of the rising waters reaching the protected areas in full force through the avenue of this proposed channel.” Appx18344.

The Government nevertheless proceeded with the project, and construction of MRGO created a conduit for saltwater intrusion from the Gulf, which destroyed tens of thousands of acres of wetlands that had for millennia acted as natural buffers against storm winds and surge. Appx18349-18350, Appx18355. In addition, decades of maintenance dredging, and the powerful wakes caused by ocean-going ships using MRGO, severely eroded the unprotected banks of the channel, expanding the channel from its authorized width of 650 feet to as much as 3,000 feet in places, thus providing a critical expanse of open water for waves and storm surge to build size and momentum before colliding with the levee designed to protect populated areas from floods. Appx18354; Appx10151.

As anticipated, the Corps' actions ultimately did lead to catastrophic flooding when Hurricane Katrina struck in 2005, inundating Plaintiffs' properties in St. Bernard Parish ("Parish") and New Orleans' Lower Ninth Ward ("Lower Ninth"), an area referred to collectively as the St. Bernard Polder ("Polder"), even though the Polder sits on some of the highest ground in Greater New Orleans and most of the area was protected by levees.

Property owners initially brought claims against the United States in district court under the Federal Tort Claims Act ("FTCA"). Following a 19-day bench trial at which some of the world's leading experts on hurricane storm surge modeling testified, the district court issued a comprehensive 93-page opinion finding that MRGO cause "the fatal breaching of the Reach 2 Levee and the subsequent catastrophic flooding of the St. Bernard polder." *In re Katrina Canal Breaches Consolidated Litigation*, 647 F. Supp. 2d 644, 697 (E.D. La. 2009) ("*Robinson*"). On appeal, the Fifth Circuit held that the Corps could not be held liable in tort due to the Government's legal immunity under the FTCA. 696 F.3d 436 (5th Cir. 2012). Most importantly, however, the Fifth Circuit emphasized that it did not disagree with the trial court's "impressive rulings," and it did not question the court's causation findings that "a combination of erosion caused by MRGO ... and destruction of wetland vegetation caused by increased salinity levels on account of MRGO's operation" led directly to the flooding of the Polder. *Id.* at 443, 446.

The named Plaintiffs in this case, a separate group of landowners, sued in the Court of Federal Claims (“CFC”), asserting that MRGO effected the temporary taking of a flowage easement over their properties for which they are entitled to just compensation. Because the causal relationship between MRGO and the flooding of Plaintiffs’ properties had been comprehensively litigated in *Robinson*, the CFC admitted in this case the bulk of the expert and fact evidence admitted in *Robinson*, and the Government has not challenged that evidentiary ruling in this Court. Based on the *Robinson* evidence as well as the additional fact and expert testimony presented below in two separate bench trials, one on liability and one on damages, the CFC independently found the Government liable for the temporary taking of Plaintiffs’ property through the catastrophic flooding caused by MRGO, *St. Bernard Parish Gov’t v. United States*, 121 Fed. Cl. 687 (2015) (Appx18302-18375) (“Liability Decision”), and calculated and awarded just compensation, 126 Fed. Cl. 707 (2016) (Appx20332-20378) (“Valuation Decision”). Thus, no fewer than five federal judges—two trial judges and three Fifth Circuit judges—have reviewed the evidence concerning the cause of Katrina’s devastating flooding in the Polder, and none have disagreed about MRGO’s causal role.

The CFC’s takings analysis faithfully applied settled principles governing flooding cases. In contrast, the Government seeks to evade these principles, urging this Court to invent new rules bestowing blanket exemptions from taking liability in

flooding cases by treating them as categorically different from other takings. But these arguments cannot be reconciled with the settled rule that “[f]looding cases, like other takings cases, should be assessed with reference to the particular circumstances of each case, and not by resorting to blanket exclusionary rules.” *Arkansas Game & Fish Comm’n v. United States*, 133 S. Ct. 511, 521 (2012) (citations and quotation marks omitted).

Unable to attack the Liability Decision on the merits, the Government retreats to policy arguments, asserting that affirmance will lead to just compensation awards following every natural disaster. Principal Brief for the United States 37 (Dec. 9, 2016), Doc. 25 (“US”). The Court rejected the same “slippery slope argument” in *Arkansas Game*, 133 S. Ct. at 521, and this Court should reject it here. The judgment under review stands only for the limited proposition, long accepted in this Court, *see Ridge Line Inc. v. United States*, 346 F.3d 1346 (Fed. Cir. 2003), that whenever the Government embarks on a project that will foreseeably lead to flooding, and the project actually causes substantial flooding damage, just compensation will be due. Here, not only was catastrophic flooding *foreseeable* to the Government, it was *actually foreseen* by the Government. But the Government nevertheless chose to proceed with MRGO’s construction and operation in order to reap the benefits to navigation and commerce. In these circumstances, the Fifth Amendment prohibits the “Government from forcing some people alone to bear public burdens which, in all

fairness and justice, should be borne by the public as a whole.” *Armstrong v. United States*, 364 U.S. 40, 49 (1960).

JURISDICTION

The CFC had jurisdiction under 28 U.S.C. § 1491(a)(1). On May 5, 2016, the CFC entered a partial final judgment under RCFC 54(b). Appx20376. The CFC’s compensation award with respect to Plaintiffs’ Trial Properties is a final judgment under RCFC 54(b), but the CFC’s preliminary calculation of the compensation due for lost tax revenues is not final or appealable. The Government timely appealed on June 30, 2016, Appx20380, and Plaintiffs timely cross-appealed on July 13, 2016, Appx20382. *See* 28 U.S.C. § 1295(a)(3); FRAP 4(a)(1)(B)(i), 4(a)(3).

STATEMENT OF ISSUES

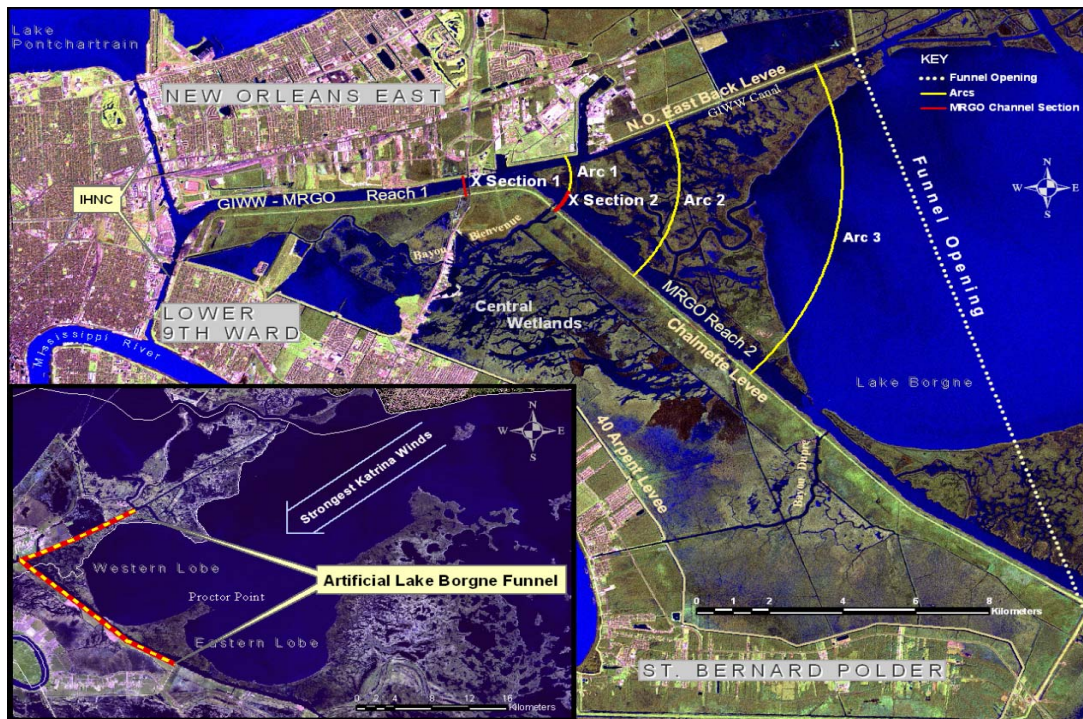
1. Whether the CFC clearly erred in finding that the flooding of Plaintiffs’ properties was a foreseeable result of the Government’s MRGO-related activities.
2. Whether the CFC clearly erred in finding that the Government’s MRGO-related activities caused catastrophic flooding on Plaintiffs’ properties.
3. Whether the CFC correctly calculated compensation owed for the Trial Properties.

STATEMENT OF THE CASE

I. FACTUAL BACKGROUND

A. MRGO

The Corps created MRGO as a navigation project designed to shave time off the traditional Mississippi River route from the Gulf to port facilities located primarily in the Inner Harbor Navigational Canal (“IHNC”). Appx103956-103957, Appx12442-12443. Congress authorized construction in 1956, and MRGO was substantially completed by 1968. Appx18312-18317. The first segment of MRGO, Reach 1, expanded a portion of the Gulf Intracoastal Waterway (“GIWW”). Appx10149, Appx12443. Two other segments, which together form Reach 2, ran from GIWW to the Gulf. Appx10150-10151, Appx12443.



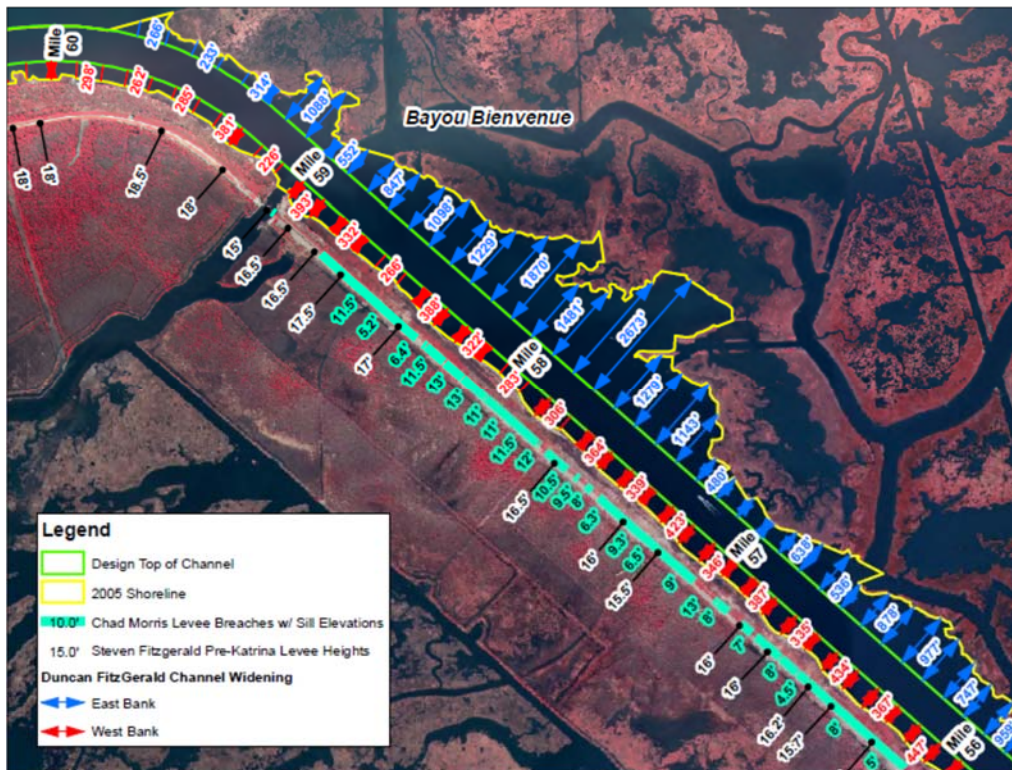
Appx18315.

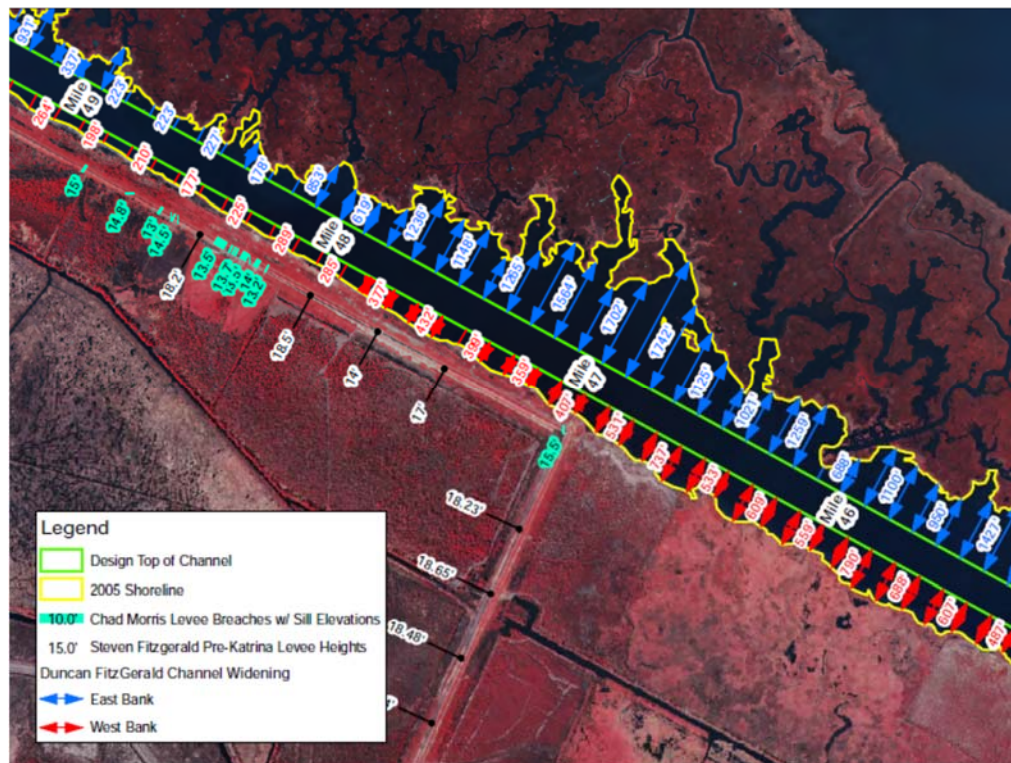
As this figure shows, the Polder includes not only developed areas, but also the Central Wetlands Unit (“CWU”), a marsh located south of Reach 1 and portions of Reach 2. Appx10158; Appx12444.

The Corps was also responsible for an unrelated project, the Lake Pontchartrain & Vicinity Hurricane Protection Project (“LPV”). The LPV was authorized by Congress in 1965, almost a decade after MRGO was authorized. Appx18310. Within the Polder, the LPV included a system of levees and floodwalls along the IHNC and the southern banks of MRGO. Appx10149-10150.

As the Government has acknowledged, the navigational benefits of MRGO “came at a cost to the environment.” Appx66581. MRGO created a conduit for saltwater intrusion from the Gulf, which destroyed tens of thousands of acres of cypress and tupelo forest, and fresh and intermediate marsh, all of which had acted as buffers against storm winds and surge. Appx18345-18352, Appx18354-18364. Moreover, decades of maintenance dredging and powerful ship wakes severely eroded MRGO’s banks and significantly expanded the MRGO channel. Appx18352-18354; Appx10151.

These photographs demonstrate how the channel has widened from its authorized dimensions (in green) to its current dimensions (in yellow):





Appx10153-10154.

As the CFC found, and the Government does not dispute, these environmental impacts were foreseeable to the Corps throughout the entire period in which it designed, constructed, maintained, and operated MRGO. Indeed, contemporaneous documents establish that these impacts were *actually foreseen* by the Government. Appx18311-18326; Appx18341-18345. For example, the dramatic widening of MRGO, and its consequent compounding of the risk of catastrophic hurricane flooding in the Polder, was expressly contemplated in the Corps' design, adopted essentially as a matter of policy over the more expensive alternative of armoring MRGO's banks to prevent erosion. Appx18342-18343. Similarly, Government documents establish its awareness of concerns that MRGO would function as a hurricane "superhighway" pointed at New Orleans and the Parish. Appx18345 (quoting Appx66582). As noted, as early as 1957, the Corps was specifically warned of the "enormous danger" of flooding MRGO posed to the populated areas of the Parish during hurricane conditions. Appx18344 (quoting Appx111336); *see also* Appx66582.

B. The Devastating Flooding Caused by MRGO

The Corps' MRGO-related activities, through the transformative effects they had on the Polder's topography, hydrography, and vegetation, ultimately led to two

types of destructive flooding: (1) catastrophic flooding that occurred throughout the Polder during Katrina; and (2) recurring flooding in areas outside the LPV.

1. Katrina made landfall as a Category 3 storm early on August 29, 2005. Although the Polder is situated on some of the highest land in the area, it suffered “the most violent, spatially expansive and deepest flooding in the entire metro area.” Appx18358 (quoting Appx10159). It is undisputed that most of the water that flooded populated areas came through extensive breaches in the Reach 2 levee early during the storm. Appx20344, Appx12562-12563, Appx12902, Appx10210. Indeed, the Government has conceded that this source of water “was by far the greatest source of water that entered the polder, greatly exceeding all other sources.” Appx20344 (alteration and citation omitted). MRGO’s wide “fetch” allowed powerful waves to propagate that quickly eroded the levees and caused early and catastrophic breaching. Appx18359. Absent MRGO, the levees would not have breached, or at a minimum, would have breached later; notably, other levee segments that were not located near MRGO, and thus not exposed to destructive MRGO waves, did not suffer extensive breaching. Appx18362, Appx10162, Appx10210-10211. These breaches led to the inundation of the CWU, the overtopping of the local levee known as the Forty Arpent, and the catastrophic flooding of developed areas. *E.g.*, Appx18362-18363, Appx10202-10208, Appx39215-39220. In short, without MRGO, the Reach 2 levees would not have breached, or at a minimum,

would have held long enough to prevent surge from completely filling the CWU and then overtopping the Forty Arpent Levee. *See* Appx18362-18363, Appx10325-10356, Appx61506, Appx61533-61534, Appx88305-88309, Appx129319-129322, Appx39215-39220.

2. Flooding on properties outside the levee system has also become more frequent due to MRGO's effects on the ecosystem, to the point where flooding often results from sustained winds blowing from the direction of MRGO. Appx64129, Appx72239, Appx11606. This recurring flooding is the result of the tidal connection MRGO created between Lake Borgne and Plaintiffs' properties. Appx10357-10365, Appx71719, Appx71505, Appx108196, Appx70559, Appx68805, Appx10057, Appx11677, Appx11402-11405, Appx11524-11525. Large expanses of wetland once separated Plaintiffs' properties from tides in Lake Borgne, but today water moves through breaches in the so-called "land bridge" between Lake Borgne and MRGO and toward Plaintiffs' land. Appx18331, Appx18343. This hydrological connection between MRGO and properties in unprotected areas is documented by Government studies. *See, e.g.,* Appx72816, Appx72737, Appx42800-42801, Appx26333, Appx12582-12585, Appx72147, Appx720863.

C. The Corps' Recent Activities

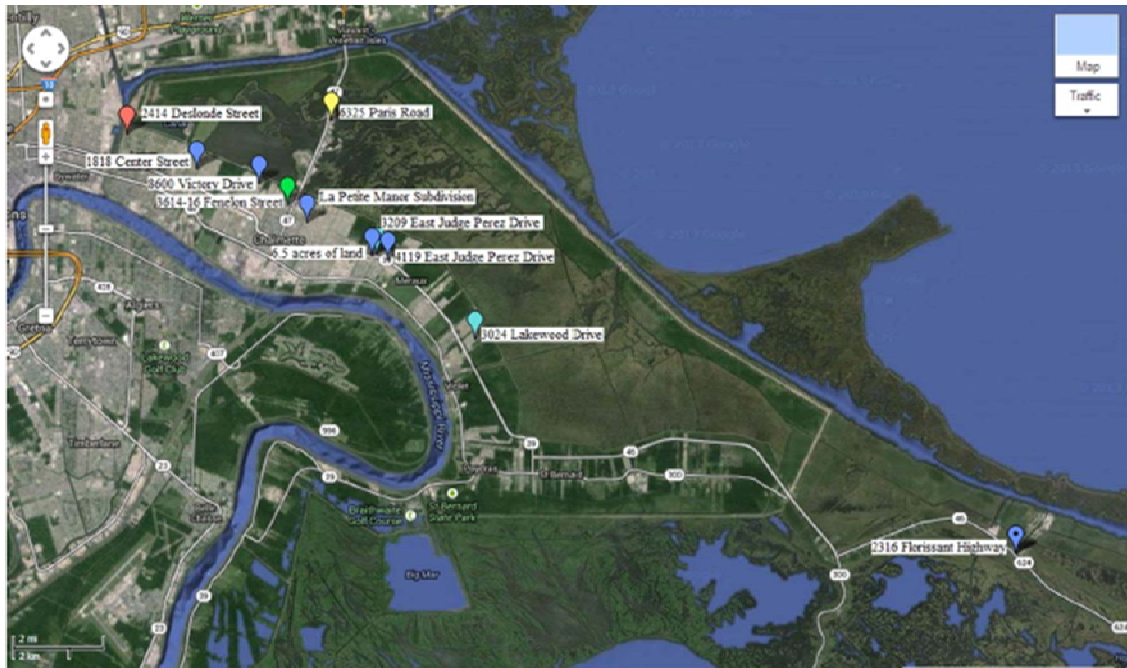
In 2009, the Corps deauthorized MRGO to deep-draft navigation and constructed a rock barrier across a section of MRGO, cutting off direct access to the

Gulf. Appx18332-18334. The Corps also took other actions after Katrina designed to mitigate flood risk, including construction of the multi-billion-dollar Hurricane and Storm Damage Risk Reduction System (the “HSDRRS”), which includes higher levees, higher heavily-fortified floodwalls, and an immense surge barrier straddling part of MRGO. Appx18332-18334. HSDRRS construction was substantially completed in June 2011. Appx18332-18333, Appx20355, Appx11293.

II. PROCEEDINGS BEFORE THE CFC

Plaintiffs filed a class action complaint in October 2005. After denying multiple dispositive motions by the Government, Appx568, Appx3575, Appx6914, the CFC held a liability trial in 2011, at which multiple fact and expert witnesses testified, and hundreds of exhibits were admitted. The CFC also judicially noticed, and admitted, testimony and evidence from *Robinson*. Appx18307, Appx18285-18287.

In 2013, the CFC held a valuation trial. The parties presented testimony and other evidence concerning the compensation owed to the Plaintiffs, assuming a favorable liability ruling, with respect to eleven “Trial Properties,” as reflected below:



Appx14969.

In addition to properties in most of the area's major communities, the Trial Properties included properties owned by the Parish and by private parties, properties of different types (residential, commercial, industrial, improved, unimproved), and properties located inside and outside the levees. Appx20335, Appx20350-20351. The selection of the Trial Properties therefore ensured that virtually all significant issues relating to compensation would be aired at trial.

In May 2015, the CFC issued its Liability Decision. After recounting MRGO's history and the numerous analyses that put the Corps on notice of the flood risks it posed, the CFC found, *inter alia*, that (1) it was foreseeable to, and *actually foreseen* by, the Corps, that its MRGO-related activities would substantially increase

storm surge and cause flooding; (2) MRGO caused catastrophic flooding in the Polder during Katrina and less severe flooding during other storms; and (3) the resulting flooding on Plaintiffs' properties was substantial and severe. Appx18339-18364; Appx18373-18374. The CFC concluded that the Government's MRGO-related activities effected a temporary taking of Plaintiffs' properties, from August 28, 2005 (the day before Katrina made landfall) until July 2009 (when MRGO was closed to navigation). Appx18371.

In May 2016, the CFC decided how compensation would be calculated and certified one liability class and two valuation sub-classes. The CFC determined that compensation for the privately-owned Trial Properties would be measured by the damage to improvements on those properties and the loss of rental value during the temporary-taking period, plus interest at the one-year Treasury rate. Appx20355, Appx20358. The CFC subsequently entered a partial final judgment, pursuant to RCFC 54(b), reflecting those decisions. Appx20372, Appx20376.

With respect to the Parish's Trial Properties, the CFC awarded compensation for that portion of the damage to improvements that, because of recoveries under flood insurance policies, was not covered by payments under the Stafford Act, 42 U.S.C. §§ 5121 *et seq.* Appx20361. The CFC also ruled preliminarily that Orleans Parish, which was included within the certified class, would be entitled to recover lost tax revenues for properties in the Lower Ninth. The CFC stressed, however,

that it contemplated further proceedings before any compensation award to either governmental entity based on lost tax revenue could be finalized. Appx20373, Appx20375.

SUMMARY OF ARGUMENT

The Government does not dispute most, if not all, of the CFC's factual findings establishing that MRGO caused the devastating flooding during Katrina and other storms. The Government does not deny that MRGO devastated the Polder's environment, causing erosion, wetland destruction, and other effects, all of which substantially amplified the power of storms. It does not seriously dispute that these environmental effects were not simply foreseeable but *actually foreseen* by the Government when it constructed, maintained, and operated MRGO. Nor does it deny that MRGO caused levees to sustain significantly more powerful wave attacks than they would have but-for MRGO, or that MRGO caused the critical Reach 2 levees to breach (if at all) *earlier* during Katrina. Together, these undisputed findings lead to the same conclusion that has been approved by every single federal judge to study the facts: MRGO caused the catastrophic flooding during Katrina.

Just as the CFC's factual findings are not clearly erroneous, its legal analysis represented a straightforward application of settled Fifth Amendment principles. The Government's principal arguments amount to requests for novel categorical ex-

emptions for takings-by-flood. But the Government lost this argument 8-0 in *Arkansas Game*. There is no blanket prohibition against takings liability when the Government creates a *man-made* risk that results in catastrophic flooding. A single flood, no less than any other single physical occupation, can result in a taking, particularly where the flooding is as catastrophic and long-lasting as here. And the Government's test for assessing whether flooding is the "predictable result" of Government action under *Ridge Line* is foreign to Fifth Amendment caselaw, which imposes takings liability when the Government causes foreseeable physical processes that result in flooding. In sum, the CFC's decision adhered to settled law and augurs no radical expansion of takings liability.

The Government's objections to narrow aspects of the CFC's causation analysis are overwhelmed by the troves of *unchallenged* evidence establishing causation, and in any case, they lack merit. Contrary to the Government's submission, the CFC properly analyzed whether Plaintiffs' properties would have flooded absent MRGO, not whether they would have flooded absent both MRGO and the LPV levee system. As the Fifth Circuit held in *Robinson*, MRGO and the LPV were separate, unrelated projects, 696 F.3d at 447-48; *see also Robinson*, 647 F. Supp. 2d at 699, and so the LPV has no bearing on whether MRGO effected a taking. The Government is simply wrong to claim the CFC did not find MRGO caused the Reach 2 levees to breach. And as noted, it does not deny that even if (counterfactually) the levees would have

breached absent MRGO, they would have breached *too late* in the storm cycle to fill the CWU and cause the devastating flooding.

The Valuation Decision also substantially tracked applicable law. The Government principally argues that the CFC should have given it offsets for money that some Plaintiffs received through insurance proceeds or contracts with Louisiana, but the Government has no right to benefit from these third-party contracts. Separately, the Court lacks jurisdiction over the CFC's non-final award of lost tax revenue. However, the CFC did err in certain limited respects, including by selecting the wrong taking end date, declining to award Parish properties a rental award, and awarding interest at the artificially low one-year Treasury rate.

STANDARD OF REVIEW

“A determination of whether a taking ... has occurred is a question of law based on factual underpinnings.” *Ridge Line*, 346 F.3d at 1352. Findings regarding such “factual underpinnings” are reviewed for clear error, and legal conclusions are reviewed *de novo*. *Id.* The same standard applies to the Valuation Decision, though the CFC enjoys considerable discretion in selecting a methodology for calculating compensation. *Otay Mesa Prop., LP v. United States*, 779 F.3d 1315, 1326-27 (Fed. Cir. 2015). The CFC's evidentiary rulings are reviewed for abuse of discretion. *Murakami v. United States*, 398 F.3d 1342, 1346 (Fed. Cir. 2005).

ARGUMENT

LIABILITY

I. THE CFC CORRECTLY FOUND A TEMPORARY TAKING.

The Government's primary liability argument is that the CFC misapplied *Ridge Line* in concluding that the Government's MRGO-related activities constituted a taking rather than a tort. US20-46. *Ridge Line* held that this inquiry considers "whether the effects [the property owner] experienced were the predictable result of the government's action, and whether the government's actions were sufficiently substantial to justify a takings remedy." 346 F.3d at 1355.

As the CFC found, overwhelming evidence, much of it coming from the Government, supports the conclusion that the Government's MRGO-related activities effected a taking. The Government's contrary argument is contradicted by precedent, divorced from logic, and irreconcilable with *Ridge Line*. Before discussing the *Ridge Line* criteria, however, we make two preliminary points.

1. The Government's suggestion that *Ridge Line* establishes a rigid "two-part showing" that necessarily must be made in every case, US22, cannot be squared with *Arkansas Game*. The Supreme Court there rejected the proposition that compensation is available only when flooding is permanent or inevitably recurring." 133 S. Ct. at 515. In so doing, the Court held that temporary flooding was "not categorically exempt from Takings Clause liability," *id.*, and it emphasized the fact-bound,

case-specific, and necessarily flexible nature of the analysis:

[N]o magic formula enables a court to judge, in every case, whether a given government interference with property is a taking. In view of the nearly infinite variety of ways in which government actions ... can affect property interests, the Court has recognized few invariable rules in this area.

Id. at 518.

The Court identified a nonexhaustive list of factors that are “relevant to the takings inquiry,” such as “duration” of flooding, “the character of the land at issue and the owner’s ‘reasonable investment-backed expectations’ regarding the land’s use,” and the “[s]everity of the interference.” *Id.* at 522. Crucially, the Court also listed certain *Ridge Line* criteria—“the degree to which the invasion is ... the foreseeable result of authorized government action” and the “[s]everity of the interference”—as relevant “factor[s]” in the analysis rather than necessary conditions that must always be met. *Id.* While this distinction between relevant factors and necessary elements is not dispositive here, given that the CFC found both the *Arkansas Game* and *Ridge Line* criteria satisfied, the Government’s rigid reading of *Ridge Line* is simply wrong. Tellingly, the CFC found that Plaintiffs satisfied *all* of the *Arkansas Game* factors, *see* Appx18339-18374, and the Government has not challenged any of those findings other than those addressing the *Ridge Line* criteria.

2. The Government’s suggestion that *Ridge Line* mandates that challenged actions be characterized as either taking or tort, but never both, is incorrect. *Ridge*

Line acknowledged the considerable overlap between takings and tort doctrines in these types of cases, citing with approval the proposition that “[i]nverse condemnation law is tied to, and parallels, tort law.” 346 F.3d at 1355. *See also Hansen v. United States*, 65 Fed. Cl. 76, 95-106 (2005) (discussing doctrinal overlap). Such overlap presents no reason to deny a Fifth Amendment remedy. A “takings claim lies, as long as the government’s action was authorized, even if the government’s action was subject to legal challenge on some other ground.” *Rith Energy, Inc. v. United States*, 247 F.3d 1355, 1365 (Fed. Cir. 2001). Thus, “the same operative facts may give rise to both a taking and a tort,” and so long as the takings inquiry is satisfied, whether the Government’s MRGO-related activities may “separately give rise to a tort action is irrelevant.” *Moden v. United States*, 404 F.3d 1335, 1339 n.1 (Fed. Cir. 2005). *See also City of Monterey v. Del Monte Dunes at Monterey, Ltd.*, 526 U.S. 687, 717 (1999).

A. The Flooding Was the Foreseeable Result of the Government’s MRGO-Related Activities.

1. *The Proper Inquiry is Whether the Invasion is the Foreseeable Result of Government Action.*

The first prong of *Ridge Line* asks whether “the asserted invasion is the direct, natural, or probable result of an authorized activity and not the incidental or consequential injury inflicted by the action.” 346 F.3d at 1355. This inquiry analyzes whether the invasion “was the predictable result of the government action.” *Id.* This

Court has repeatedly emphasized that whether an invasion was “predictable” turns on whether it was *foreseeable*. See *Moden*, 404 F.3d at 1343 (“the resulting injury must be foreseeable from the authorized government act”); *Cary v. United States*, 552 F.3d 1373, 1377 (Fed. Cir. 2009) (landowners must plausibly show that invasion was “the likely, foreseeable result” of Government action).

Foreseeability is assessed under an objective standard. The Government need not have actually foreseen the invasion. *Moden*, 404 F.3d at 1344 n.3. Cf. *Cotton Land Co. v. United States*, 75 F. Supp. 232, 234 (Ct. Cl. 1948) (rejecting proposition that “the fact that the [government’s] engineering study was not so complete as to include a prediction as to lands [at issue should] prevent a court from looking at the actual and natural consequence of the Government’s act”); *Ridge Line*, 346 F.3d at 1357 (discussing *Cotton Land*). Rather, the inquiry focuses on whether the “government should have predicted or foreseen the resulting injury.” *Moden*, 404 F.3d at 1343. See *Sanguinetti v. United States*, 264 U.S. 146, 149-50 (1924) (examining whether increased flooding was “within the contemplation of or reasonably to be anticipated by the government”); *Arkansas Game & Fish Comm’n v. United States*, 736 F.3d 1364, 1374 n.3 (Fed. Cir. 2013).

2. *The Government’s Version of the Inquiry Cannot Be Reconciled with Precedent.*

The Government seeks to rewrite the inquiry, contending that even assuming

that the CFC correctly found that the design, construction, operation, and maintenance of MRGO foreseeably led to catastrophic flooding, such flooding can *never* amount to a taking. US23-24. *Ridge Line*, according to the Government, requires more: the invasion must constitute a “necessary aspect of the government’s action and thus part of the authorized project itself.” US24. The Government would thus limit liability to situations where flooding was “necessary for the project to be constructed, operated, or used as intended.” *Id.* *See also id.* (flooding needs to be “part of” or an “integral feature of” the project).

There are numerous flaws with this “necessary aspect” test. *Ridge Line* and later cases consistently characterize the inquiry as focusing on the *foreseeability* of the results of Government activity, not whether flooding was a “necessary aspect” of the project. *Ridge Line* based its articulation of the inquiry on decisions by this Court, the Court of Claims, and the Supreme Court, all of which described the inquiry in terms compatible with traditional notions of foreseeability. 346 F.3d at 1355-57. And even if one assumes that the Government’s test *ever* had precedential support, it cannot survive *Arkansas Game*, where both the Supreme Court and this Court, citing *Ridge Line*, stressed the need to assess *foreseeability*. *Arkansas Game*, 133 S. Ct. at 522; *Arkansas Game*, 736 F.3d at 1372. Notably, the Government does not cite a single decision that imposes or endorses its “necessary aspect” test.

Despite its half-hearted attempts to suggest otherwise, the Government is essentially arguing that liability is appropriate only where the Government *specifically intended* to appropriate property—that is, where flooding was among the *purposes* of the Government’s project. It argues that its test is designed to identify situations where “it is fair to conclude that an appropriation of an interest in property was an intended feature of the government project in order for it to operate or be used in the ordinary course.” US33. And the only example it offers of a situation satisfying its test—cases “finding a taking when the water impounded in the reservoir created by a government-constructed dam submerges private property,” US24—confirms that that test would impose liability in few if any cases where the Government did not intend to inundate property.

The Government’s reformulation of the inquiry is also impossible to square with decisions finding takings, or concluding that takings claims could proceed, in situations that would clearly fail its test. In *Ridge Line* itself, the Government authorized not a dam but rather Post Office facilities, including a parking lot, whose impervious surfaces led to increased storm runoff onto nearby properties. 346 F.3d at 1351. This runoff cannot be characterized as an “integral feature” of the project. Under the Government’s test, it should have been short work for this Court to reject the claim. But this Court instead remanded for a determination of “whether the increased runoff ... was the predictable result of the government action.” *Id.* at 1356.

Similarly, *United States v. Kansas City Life Insurance Co.*, 339 U.S. 799, 800, 812 (1950), involved a claim for damage to farmland resulting from a dam “artificially maintaining” the Mississippi River at ordinary high-water level. The land was neither part of any reservoir nor “in any sense within the bed of the river,” but was instead located 1.5 miles away. *Id.* The land was not directly flooded by the project; rather, the damage was caused by the raising of the water table due to “percolation of the water which rose and fell with the river” and by the “resulting blockade of the drainage of the land’s surface and subsurface water.” *Id.* at 803. Though not an “integral feature” or “necessary aspect” of the project, such “underflowing” damage was foreseeable, *id.* at 802 & n.4, and the Supreme Court affirmed the finding of a taking. *Id.* at 812.¹

In *Cotton Land*, 75 F. Supp. at 233, the plaintiffs’ property was located upstream of a dam, but its flooding was not an “integral feature” of the reservoir. Because the dam set in motion an unintended, complex, but foreseeable chain of events, however, the Court of Claims concluded that its “construction and operation” effected a taking. *Id.* at 232. The “succession of events” included: (1) “[t]he river flowed into the lake;” (2) it “deposited its sand where it collided with the still water;”

¹ See *United States v. Dickinson*, 331 U.S. 745, 750-51 (1947) (rejecting argument that erosion damage caused by river whose level was raised by dam was “consequential” and therefore noncompensable).

(3) “the deposit of the sand placed another obstacle to the full and rapid flow of the river;” (4) “this filling up of the bed of the river raised the level of its water;” and (5) the river overflowed onto the plaintiffs’ land. *Id.* at 233.

As in this case, the Government argued that “where the owner’s loss can be traced to the Government’s act only through such a [long] chain of events ..., the loss is consequential and, therefore, not compensable.” *Id.* Analyzing this “remoteness” argument by reference to tort law principles, the Court concluded that the injury was foreseeable, explaining that the loss “was not legally remote” because the events that occurred, “although they took some time, were only the natural consequences of the collision of sediment-bearing flowing water with still water, and the progress upstream, of the deposit begun by that collision.” *Id.*

This Court and its predecessor have relied on *Cotton Land* in other cases that cannot be reconciled with the Government’s test. In *Barnes v. United States*, 538 F.2d 865, 868, 872 (Ct. Cl. 1976), the Court of Claims held that flood damage was not consequential where the impounding of waters by two dams led to the deposit of sediment creating “a delta of unprecedented magnitude,” which then restricted a river’s carrying capacity, which led, years later, to surface flooding, seepage, impaired surface and subsurface drainage, and raised groundwater tables. The Court relied on the fact that “Government officials actually foresaw that delta growth would be a factor to consider in evaluating the impact” of the dams. *Id.* See *Tri-*

State Materials Corp. v. United States, 550 F.2d 1, 9 (Ct. Cl. 1977) (claim can proceed where dam caused mine to flood as result of restricted subterranean drainage).

Likewise, in *Owen v. United States*, 851 F.2d 1404, 1405-07 (Fed. Cir. 1988) (en banc), this Court reversed a judgment on the pleadings where it was alleged that Government dredging that widened portions of a river “and increased the arcs of certain river bends” led to increased river velocity, which led to increased erosion, which eventually caused a portion of the plaintiff’s land and house to “topple into the river.” The Court rejected the argument that such damage was necessarily “indirect and consequential.” *Id.* at 1407.

In none of these cases was the property damage an “integral” or “intended” feature of the Government project, akin to the reservoir purposefully created by a dam. In none of these cases could it credibly be said that the invasion was necessary “in order for [the project] to operate or be used in the ordinary course.” US33. And in all of these cases, the damage to the plaintiffs’ properties came at the end of a long chain of events set in motion by the Government’s authorized activities. But in all of these cases, because it was alleged or proved that the damage was foreseeable or foreseen, it was considered the direct, natural result of Government action rather than a consequential, remote injury.

3. *The Undisputed Evidence Establishes that the Flooding Here Was the Direct, Natural, or Probable Result of MRGO.*

Viewed in light of these well-established principles, the CFC correctly found that the catastrophic flooding suffered throughout the Polder was the direct, natural, or probable result of the Government's MRGO-related activities. Specifically, the CFC found, and the Government does not dispute, that all of MRGO's environmental impacts, and their implications for devastating flooding, were foreseeable to and actually foreseen by the Government throughout the entire period in which the Corps designed, constructed, maintained, and operated MRGO.

The CFC found, *inter alia*, that the Corps knew or should have known that (1) MRGO would cause saltwater to intrude upon and destroy storm-buffering wetlands, thereby "increas[ing] the storm surge of hurricanes and tropical storms that impact this area of coastal Louisiana," Appx18341; (2) MRGO's banks would steadily erode, widening the channel and risking a breach of the land bridge that separated MRGO from Lake Borgne, Appx18341-18343; (3) the combined effect of increased salinity, habitat/wetland loss, and erosion would contribute to substantially increased storm surge, Appx18343-18344; and (4) MRGO would create a funnel effect that would transform the waterway into a "'superhighway' for storm surges." Appx18345. The Government does not suggest that any of these findings were clearly erroneous.

Nor could it, for these findings were based largely on voluminous documentation that was either prepared or reviewed by the Government. To cite just a few examples, as early as 1957, the Corps was warned that “[d]uring times of hurricane conditions, the existence of [MRGO] will be an enormous danger to the heavily populated areas of the Parish due to the rapidity of the rising waters reaching the protected areas in full force through the avenue of this proposed channel.” Appx18344 (quoting Appx111334). By 1958, the Corps was aware that saltwater intrusion from MRGO would significantly damage surge-buffering wetlands and cause other significant ecological changes. Appx18341 (citing Appx117257).

In addition, the Corps’ own design documents acknowledged that substantial erosion of MRGO’s unprotected banks was inevitable. Appx18342 (citing, *inter alia*, Appx91682). The Corps nevertheless decided, for cost reasons, not to armor MRGO’s banks and thus to allow such erosion to continue. Appx18343. In 1984, the Corps acknowledged that MRGO had caused the east bank along Lake Borgne to come “dangerously close to being breached,” and that once that breach happened, the Polder “would be exposed to direct hurricane attacks from Lake Borgne.” Appx18349 (quoting Appx48726). Four years later, the Corps acknowledged that closing MRGO would “reduce the possibility of catastrophic damage to urban areas by a hurricane surge coming up this waterway.” Appx18352 (quoting Appx85033). *See also* Appx10171-10188, Appx66581-66582.

Whether viewed in light of traditional notions of foreseeability or some heightened standard, this evidence was overwhelming, and renders unassailable the CFC's finding that the flooding here was the direct, natural, or probable result of the Government's MRGO-related activities. These findings mirrored those of the district court in *Robinson*. See *Robinson*, 647 F. Supp. 2d at 654-55 (finding that the Corps was aware of, *inter alia*, the effects MRGO would have on erosion, channel widening, wave propagation, and water velocity).

The Government criticizes the CFC for supposedly limiting its focus to what was foreseeable in 2004-05 rather than at the time MRGO was authorized or constructed. US33-34. This criticism misconstrues our claim, the evidence, and the CFC's analysis. Plaintiffs' claim has always focused on the effects not just of MRGO's initial design and construction, but also of the Corps' subsequent operation and maintenance of the channel. As discussed, the Corps' operation of the channel, its continued maintenance dredging, and its deliberate decision not to armor the channel's unprotected banks substantially contributed to the erosion of those banks and the resulting widening of the channel itself, both of which had grave—and understood—implications for exacerbating destructive storm surge and waves in the event of a storm. The CFC properly considered such evidence of what was foreseeable throughout the period of the challenged action. *Cf. Arkansas Game*, 736 F.3d

at 1373 (considering evidence not just at beginning of challenged water release policy but also “during the deviation period”).

The Government cherry picks one passage of the CFC’s analysis to suggest that the court myopically focused its foreseeability analysis on 2004-05. The CFC discussed that period primarily to show that the Corps knew by then “at the latest” that the risk of serious flooding was “imminent.” Appx18367. But as discussed above, the CFC also considered at length, and made findings concerning, what the Corps knew or should have known about the effects of MRGO throughout the period of its construction and operation.²

4. *The Authorities Cited by the Government Do Not Support Its Vitiating of the “Direct, Natural, or Probable” Inquiry.*

The Government cites a handful of decisions from a century ago that it claims show that “damages suffered through far less attenuated chains of causation” than found here do not constitute a taking. US25-26. But as the Supreme Court cautioned in *Arkansas Game*, it is perilous to place undue emphasis on snippets of language from such decisions, both because of the necessarily fact-bound nature of the takings

² See, e.g., Appx18312 (1957 warning about MRGO flood danger); Appx18313 (1958 warnings about saltwater intrusion); Appx18314 (1959 warnings about bank erosion); Appx18315 (knowledge in 1961 of funnel effect); Appx18316 (studies performed in 1962, 1965, and 1973); Appx18320-18321 (1998 study detailing MRGO’s ecological effects and 1998 Parish resolution calling for MRGO closure); Appx18322-18324 (2000 EPA report); Appx18324-18325 (2001-03 Corps study of possible MRGO closure).

analysis and because of subsequent doctrinal developments. 133 S. Ct. at 520. In any event, the cited decisions do not support the Government's cramped understanding of the inquiry.

In *Keokuk & Hamilton Bridge Co. v. United States*, 260 U.S. 125 (1922), the Court rejected a claim by the owner of a pier damaged by Government blasting. The relevant analysis was limited to one sentence of the two-paragraph opinion, *id.* at 127, and there is no indication that the plaintiff even attempted to show that the damage was foreseen by or foreseeable to the Government. In the absence of such evidence, it is not surprising that the Court concluded that the damage was "incidental."

Bedford v. United States, 192 U.S. 217 (1904), is likewise inapposite. As this Court emphasized in *Owen*, 851 F.2d at 1411, *Bedford* is no obstacle to recovery when Government activity foreseeably sets in motion a chain of events that disrupts the natural flow of water and eventually causes flooding. In such cases, *Bedford* does not foreclose a finding that flooding damage was the direct consequence of Government activity.³

³ The Government cites *Jackson v. United States*, 230 U.S. 1, 23 (1913), for the proposition that it is not liable for "remote or consequential damages" stemming from navigation projects. US26. But that merely begs rather than answers the question.

The Government also invokes yet another categorical exemption from liability, claiming that “property damage caused by an unprecedented natural event like a hurricane is not a taking.” US27. But courts have often held the Government liable for projects that foreseeably magnify the effects of storms, including projects that cause levees to breach. Thus, in *Turner v. United States*, 23 Cl. Ct. 447 (1991), the court found a taking where the Government widened and dredged a waterway, causing land that was already subject to flooding “during heavy rains” to be subjected to inundation because the Government’s activities, like its activities here, caused erosion, increased the velocity of floodwaters, and resulted in a “concentration of waters during floods” that ultimately “caused catastrophic ‘blow outs’ of the levee onto plaintiffs’ lands.” *Id.* at 449-50. As in this case, the “causal connection [was] virtually conceded in Corps documents,” which acknowledged that its actions led to those types of effects. *Id.* at 454-55. Significantly, this decision was rendered after a remand from this Court, which held that the Government may be liable when, as here, the evidence proved that the Government’s activities exacerbated the effects of a storm and caused levees to breach. *Turner v. United States*, 901 F.2d 1093, 1097 (Fed. Cir. 1990).

Likewise, in *Ridge Line*, this Court held that the Government could be liable for increasing storm runoff onto plaintiff’s land. 346 F.3d at 1359. *Ridge Line*’s lengthy explication of the legal standards governing flooding cases cannot be

squared with the argument that severe storms are always superseding events relieving the Government of liability. *See King v. United States*, 427 F.2d 767, 768 (Ct. Cl. 1970) (Government increased severity of naturally-occurring floods); *United States v. Payne*, 368 F.2d 74, 75 (4th Cir. 1966) (Government exacerbated effects of “normal runoff” that already naturally subjected land “to periodic flooding”). Nor can the Government’s proposed rule be reconciled with precedent holding the Government liable for flooding even though it occurred, for example, when a river was unusually high, *United States v. Cress*, 243 U.S. 316, 326 (1917), or when precipitation and snow melt were heavy, *Barnes*, 538 F.2d at 868. These decisions leave no doubt that a weather event that is foreseeable (*e.g.*, a hurricane in the nation’s most hurricane-prone region) is not an automatic superseding cause of flooding.

The Government’s reliance upon *Sanguinetti*, 264 U.S. at 147, is also misplaced. While the Court did note that there had been a “flood of unprecedented severity,” *id.*, that had nothing to do with the result. Rather, as the Court explained in *Arkansas Game*, 133 S. Ct. at 520, the claim was rejected because of “case-specific” facts, including that the Government had no reason to expect that its project would cause flooding and that “the landowner failed to show a causal connection” between the project and increased flooding. Thus, *Sanguinetti*’s “outcome rested on settled principles of foreseeability and causation,” not the Government’s invented rule against recovery for flooding associated with severe storms. *Id.*

Likewise, the outcome in *Bartz v. United States*, 633 F.2d 571, 577 (Ct. Cl. 1980), was driven by the Court’s finding, based on case-specific evidence, that flooding “would in all likelihood have happened without the existence of the [Government] dam.” Similarly, in *Columbia Basin Orchard v. United States*, 132 F. Supp. 707, 711 (Ct. Cl. 1955), the Court found, based on case-specific evidence, that the Government “could not have foreseen” that its actions would cause damage on plaintiff’s property. Neither decision purported to apply a blanket exception for flooding associated with “heavy,” “excessive,” or even “unprecedented” rainfall.⁴

Thus, in cases where the fact-bound inquiries of foreseeability and causation are satisfied, the fact that property damage occurred in the wake of extreme or supposedly “unprecedented” conditions is no impediment to liability. *See also Barnes*, 538 F.2d at 868, 871 (taking found even though flooding was associated with formation of “delta of unprecedented magnitude”). The Government cites no case, and Plaintiffs have found none, holding that the fact that the *source* of floodwaters may have been a storm, even one characterized as severe, provides an automatic exemption from liability, no matter what role the Government played in directing those

⁴ The same is true for *Wilfong v. United States*, 480 F.2d 1326 (Ct. Cl. 1973). Moreover, the Government’s partial quotation, US27, obscures that that decision rested on the view, rejected by *Arkansas Game*, that only flooding having “permanent” consequences is compensable.

stormwaters onto privately-owned lands or what the Government should have understood about the likely effects of its activities. The Government was made aware of the very risk of catastrophic flooding that its MRGO-related activities posed *in the event of hurricanes and severe storms*. Why, then, should it escape taking liability because the very scenario it foresaw came to pass?

Contrary to the Government's assertion, US30-32, the CFC correctly held that *Cary* does not mandate a different result. Appx18367. In *Cary*, this Court found that a hunter who illegally started a fire broke the chain of causation between the Government's fire suppression policy and plaintiffs' losses. 552 F.3d at 1378-81. *Cary* follows the traditional rule that the intentional conduct of third parties is normally a superseding cause. *See* RESTATEMENT (SECOND) OF TORTS § 448. That rule has no application to the natural and entirely foreseeable events here. Indeed, *Cary* actually distinguished flooding cases, like *Cotton Land*, where damage that occurred years after the Government set in motion a foreseeable chain of events was held compensable. 552 F.3d at 1378. Unlike the *Cary* plaintiffs, who never alleged that a conflagration was the foreseeable result of the Government's fire suppression policy, *id.*, Plaintiffs proved that MRGO made catastrophic flooding not only foreseeable but probable. Significantly, even in *Cary*, this Court eschewed categorical rules, stressing that it was *not* saying "that the government may escape liability *per se* by finding an incidental intervening or contributing cause," and it discussed scenarios

where a human-ignited fire *would* satisfy the *Ridge Line* inquiry. *Id.* at 1379.⁵

5. *The Government's Remaining Arguments on the First Part of the Ridge Line Inquiry Are Meritless.*

Contrary to the Government's suggestion, the CFC did not base its analysis on the Corps' supposed failure to take action such as closing MRGO or armoring MRGO's banks. US35. Again, Plaintiffs' claim and the CFC's analysis were premised on the entirety of the MRGO project (design, construction, operation, and maintenance). Once the Government proceeds with such authorized actions, it bears the risk of takings liability for their direct, natural, or probable results. The fact that the Government may have avoided those results, and thus liability, by doing things differently or taking some other action (such as armoring MRGO's banks), does not somehow transform a takings challenge to the actions the Government *did* take into a challenge to "discretionary inaction." If that were the law, virtually no takings claim would succeed, as the Government would just recharacterize it as a challenge

⁵ The Government cites two other decisions, but neither advances its position. US31. In *National By-Products, Inc. v. United States*, 405 F.2d 1256, 1275 (Ct. Cl. 1969), the Court held only that Government foreknowledge was not *sufficient* to establish a taking where the property injury was insubstantial. And in *Stueve Bros. Farms, LLC v. United States*, 737 F.3d 750, 753 (Fed. Cir. 2013), this Court held only that apprehension of flooding was not *sufficient* to establish a taking when no flooding *actually* occurred.

to the Government’s “failure” to do things differently.⁶

Similarly, the argument, unsupported by precedent, that liability “is especially incongruous” for properties inside the levee system misses the mark. US28-29. The levee system’s failure to protect property owners from floodwaters unleashed by MRGO does not make the takings challenge to MRGO the “functional[] equivalent” of a challenge to the adequacy of the levees. US29. In *Ridge Line*, for example, the fact that the Government did not take effective steps to prevent runoff onto Plaintiffs’ property did not transform Plaintiffs’ claims into a challenge to the adequacy of the actions it did take. 346 F.3d at 1351 (discussing Government’s attempt to prevent runoff).

The Government also complains that unless its extreme reading of the “direct, natural, or probable” inquiry is adopted, *Ridge Line*’s first prong would no longer effectively distinguish takings from possible torts. US32. Not so. By distinguishing property damage that is “merely an incidental or consequential injury”—that is, damage that is not the “predictable result” of authorized Government action—from

⁶ Tellingly, decisions cited by the Government—*Georgia Power Co. v. United States*, 633 F.2d 554 (Ct. Cl. 1980); *Acadia Tech., Inc. v. United States*, 458 F.3d 1327 (Fed. Cir. 2006), and *Eastport S.S. Corp. v. United States*, 372 F.2d 1002 (Ct. Cl. 1967)—involved claims premised on the Government’s alleged failure to take any action.

damage that *foreseeably* results from such action, *Ridge Line* drew a clear line between potentially actionable torts and compensable takings. 346 F.3d at 1356. Moreover, unauthorized Government activity will usually not constitute a taking, but could constitute a tort.

B. The Nature and Magnitude of the Government’s Property Invasion Rises to the Level of a Taking.

The Government also attacks the CFC’s analysis under *Ridge Line*’s second prong, which examines “whether the government’s actions were sufficiently substantial to justify a takings remedy.” 346 F.3d at 1355. The Government does grudgingly concede that the “flood damage during Katrina was undoubtedly severe,” US38, and it does not challenge the CFC’s fact findings on this issue. Instead, it invents another, categorical exemption to avoid liability, asserting that no matter how severe temporary flooding is, how long it takes for floodwaters to recede, or how much damage flooding causes, property owners cannot recover if the flooding may be characterized as a “single incident” rather than “repetitive” or “recurring.” *Id.* Governing precedent does not support this arbitrary single-incident exemption.

1. *Ridge Line* does not require multiple incidents of flooding as a rigid prerequisite to satisfying the nature-and-magnitude prong of the inquiry it announced. Rather, the Court held that this analysis examines whether the property invasion “preempt[s] the owners[’] right to enjoy his property for an extended period of time, rather than merely inflict[s] an injury that reduces its value.” 346 F.3d at

1356. Thus, *Ridge Line* focuses on the nature and substantiality of the invasion, and it was in this context that this Court discussed the relevance of repeated flooding. *Id.* at 1357. Read in context, it is clear that the Court referred to “repeated invasions of the same type,” *id.*, as *examples* of the type of substantial preemption of property rights that may constitute a taking. There is no indication that the Court intended to *categorically* require multiple floodings before a taking can be found.

This understanding of *Ridge Line* is consistent with both prior and subsequent precedent. While many of the early decisions do discuss whether there were multiple floods, that question was viewed as simply a factor to be considered in connection with the critical question: whether the invasion was so substantial as to constitute a taking or instead so insubstantial as to amount to a consequential injury redressable, if at all, only in tort. Thus, in *Cress*, 243 U.S. at 327-28, the Court, while noting that the claimant’s property had been subjected to “frequent overflows,” nevertheless stressed that “it is the character of the invasion, not the amount of damage resulting from it, so long as the damage is substantial, that determines the question whether it is a taking.” *See also Sanguinetti*, 264 U.S. at 149-50 (considering whether owner was “ousted” from his property or had “his customary use of the land prevented” for other than “short periods of time”).⁷ That there is no rigid requirement of multiple

⁷ *Cf. Hansen*, 65 Fed. Cl. at 118 (“substantiality of harm lies at the core of the distinction between torts and takings”).

floods is confirmed by the fact that flowage easements have been found in cases where there has been one actual flood. *See, e.g., Stockton v. United States*, 214 Ct. Cl. 506, 518 (1977).⁸

It is unsurprising that flooding cases focus on substantiality of harm rather than merely counting up floods, because substantiality of harm is a standard feature of takings jurisprudence. Thus, in finding the taking of an avigation easement, the Court in *United States v. Causby*, 328 U.S. 256, 266 (1946), stressed that “[f]lights over private land are not a taking, unless they are so low and so frequent as to be a *direct and immediate interference with the enjoyment and use of the land.*” (emphasis added). Given the short duration (mere seconds) of an overflight, it made sense that *Causby* suggested that overflights would ordinarily need to be “frequent” to constitute a taking, but the important point is that the Court’s focus was on substantiality of harm—whether the overflights amounted to a “direct and immediate interference” with property rights. *See Arkansas Game*, 133 S. Ct. at 519 (discussing *Causby*).

Similarly, in *John R. Sand & Gravel Co. v. United States*, 457 F.3d 1345, 1357

⁸ The Government also cites *Cary*, but that decision simply reinforced *Ridge Line*’s teaching that the inquiry focuses on the substantiality of the invasion. 552 F.3d at 1380. *Cary* did not announce a categorical rule requiring multiple instances of flooding in all cases.

(Fed. Cir. 2006), this Court focused on the substantiality of the invasion in distinguishing “permanent” physical occupations that were *per se* takings from “transient” and “inconsequential incursion[s]” that were not: permanence, the Court stressed, is “highly fact-specific” and does not mean forever or continuous. “A government occupation is permanent when the government’s intrusion is a substantial physical occupancy of private property.” *Id.* (citations and quotation marks omitted). Thus, the line separating takings from torts relates to “the nature of the intrusion, not its temporal duration. ... A ‘permanent’ physical occupation, as distinguished from a mere temporary trespass, involves a substantial physical interference with property rights.” *Skip Kirchdorfer, Inc. v. United States*, 6 F.3d 1573, 1582 (Fed. Cir. 1993).

Any remaining doubt on this question was removed by *Arkansas Game*. While that case involved repeated floodings, the Court’s entire analysis is irreconcilable with the Government’s categorical exemption but for one-time floods. As discussed, the Court rejected the use of “magic formula[s]” in takings cases, and stressed that flooding “should be assessed with reference to the ‘particular circumstances of each case,’ and not by resorting to blanket exclusionary rules.” 133 S. Ct. at 518, 521. The Government’s “get out of jail free card” for one-time floods violates these principles. The Court also noted that “time” was “a factor” in determining whether a taking occurred, and that “[s]everity of the interference figures in the calculus as well.” *Id.* at 522. *Arkansas Game* thus confirms that frequency of flooding

is simply one factor among many, and hardly dispositive, in the analysis.⁹

Arkansas Game also stressed that there was “no solid grounding in precedent for setting flooding apart from all other government intrusions on property,” and it analogized temporary flooding to other cases where temporary Government occupation of property effected a taking. *Id.* at 519, 521. *Cf. United States v. Pewee Coal Co.*, 341 U.S. 114 (1951); *Kimball Laundry Co. v. United States*, 338 U.S. 1 (1949); *United States v. General Motors Corp.*, 323 U.S. 373 (1945). This point is fatal to the Government’s position. It concedes, as it must, that Plaintiffs were ousted from their properties for weeks, and in some cases months, as a result of flooding. Appx18374. And it does not appeal from the CFC’s use of a multi-year period to measure the duration of the taking here. In any context other than flooding, even the Government could not plausibly argue that it could physically occupy property, or exclude the owner, for weeks, months, or years without paying compensation, on the theory that its activity constituted but a “single incident.”

2. The CFC did not clearly err in finding that the Government’s interference with Plaintiffs’ use and enjoyment of their properties was sufficiently severe

⁹ The Government notes that *Arkansas Game* quoted the Court’s earlier decision in *Portsmouth Harbor Land & Hotel Co. v. United States*, 260 U.S. 327, 329-30 (1922), but that quote does not announce a categorical rule that single invasions can never amount to a taking: “[W]hile a single act *may* not be enough, a continuance of them in sufficient time may prove [a taking]. *Every successive trespass adds to the force of the evidence.*” (emphases added).

and substantial to constitute a taking. Even for those properties that flooded only during Katrina, the Government has not challenged—in fact, it confirms, US38—the CFC’s finding that such flooding was severe. Appx18374. And the flooding associated with Katrina was far from fleeting or incidental. As noted, Plaintiffs’ properties remained inundated for days if not weeks. Appx18329, Appx18374. Plaintiffs could not even return to their properties for weeks if not months, Appx18374, Appx20356, and the improvements on their properties—in many instances, their homes—were severely damaged if not completely destroyed. Appx20350-20352, Appx20360-20361.

Moreover, it is also undisputed that many properties, located both inside and outside the levee system, *did* flood on multiple occasions. Appx18365; *see also* Appx12582-12583; US38-39 (conceding “[n]early all of the properties” flooded at least “twice”). The Government claims that some properties flooded during Hurricane Rita only because the levees damaged during Katrina had not yet been repaired, and that such flooding should somehow be counted as part of the “single” Katrina event. US39. This argument only underscores the Government’s reliance on arbitrary rules designed to advance no principle other than that the Government wins. The Government’s separate argument that the repeated flooding of properties outside the levees was not caused by MRGO ignores the evidence establishing the role played by MRGO in causing flooding even in the absence of severe storms. *See*

supra at 12.

Finally, the evidence also established that at least until 2011, when the new “HSDRRS” flood protection system was completed, even properties inside the levees remained vulnerable to recurring MRGO-related flooding.¹⁰ This evidence, much of which came from the Government, included, among many things, 2008 FEMA flood insurance studies noting that “[d]amaged levees, decimated wetlands, and *the still-open MRGO have left the parish vulnerable to future storms,*” Appx60494 (emphasis added); Corps flood depth maps and associated analyses showing that the Polder remained highly vulnerable to flooding, Appx50713-50732; Appx71496-71498; Appx32844, Appx32894; Appx31663-31668; Appx25013; Appx38493; testimony of Government officials, Appx8952; Appx7792, Appx7795; and expert testimony. Appx10391-10392; Appx10047-10048; Appx12597-12605. Thus, even if the Government were correct, which it is not, that evidence of recurring flooding is necessary, such evidence exists here.

3. The Government suggests that because some plaintiffs acquired their properties after MRGO was constructed, the Government’s MRGO-related activities

¹⁰ Recurring flooding can be proved not only by evidence of past flooding, but also by evidence of the likelihood of future flooding. *See Cary*, 552 F.3d at 1381 (“[A]ppropriation means that the water stays on the property indefinitely, *or predictably returns*”) (emphasis added); *Stockton*, 214 Ct. Cl. at 519; *Barnes*, 538 F.2d at 872; *King*, 427 F.2d at 769-70.

could not have disturbed their reasonable investment-backed expectations. US41. This argument fails for multiple reasons. First, the challenged action here is not just the original design and construction of MRGO, but also its subsequent operation and maintenance, which caused the wetlands destruction and other environmental effects that led to flooding. Second, as the Supreme Court made clear in *Palazzolo v. Rhode Island*, 533 U.S. 606, 629 (2001), a taking claim is not barred by the mere fact that the challenged government action occurred before the plaintiff purchased the property. *See also Banks v. United States*, 88 Fed. Cl. 665, 673 (2009) (owner entitled to recover all damages attributable to environmental damage that occurred before acquisition). Finally, the Government ignores the undisputed evidence showing that at all relevant times prior to Katrina, the Corps represented to the public, inaccurately, that MRGO did not pose a flood risk and that properties inside the levees were protected from major storms. Appx18340, Appx67049, Appx12560-12561, Appx69413, Appx39124, Appx43890. The CFC therefore properly found that this factor supported a compensable taking. Appx18340.

C. The Government's Policy Arguments Are Baseless.

The Government argues at length that the Liability Decision disrupted a “settled understanding” of the Fifth Amendment on which Congress relied in authorizing the Corps to undertake civil works projects. US41-46. The Government did not make this argument in the CFC, and it is therefore waived. *See Boggs v. West*, 188

F.3d 1335, 1337-38 (Fed. Cir. 1999). But it is meritless regardless.

The Government proceeds from multiple mistaken premises, the most important being that the CFC's decision represents a significant departure from current law. As discussed, the CFC carefully weighed the evidence before it and correctly applied established precedent. The Government, not the CFC, seeks to depart from settled law by inventing a series of special taking exemption rules for flooding cases, all of which operate in its favor to substantially narrow the circumstances in which it would be held liable, and none of which are supported by precedent.

The Government also suggests that subjecting it to takings liability would “circumvent” the “limitations on federal liability found in the Flood Control Act [(“FCA”)] and the FTCA.” US46-47. As a threshold matter, the FCA is simply inapplicable to MRGO, which is a navigation project, not a flood control project. More fundamentally, this argument seeks to elevate the FCA and FTCA above the requirements of the Constitution, which, of course, has things precisely backward. Whatever policy considerations Congress may have had in mind in crafting those statutory schemes cannot trump the Fifth Amendment's protection of property, which is self-executing. *First English Evangelical Lutheran Church v. Los Angeles*, 482 U.S. 304, 315 (1987).

Notably, in *Arkansas Game*, the Government made similarly dire predictions of the effects a liability finding would have. The Court was justifiably skeptical of

this “slippery slope argument,” emphasizing that “[t]ime and again in Takings Clause cases, the Court has heard the prophecy that recognizing a just compensation claim would unduly impede the government’s ability to act in the public interest.” 133 S. Ct. at 521. But just as “[t]he sky did not fall after *Causby*,” *id.*, it has not fallen after *Arkansas Game*, and it will not fall today.

In sum, the CFC’s decision faithfully follows settled law. It does not hold or suggest that the Government is liable for a taking whenever it fails to prevent storm flooding. Nor does it impose liability whenever a Government flood control project fails to work as intended. The CFC’s reasoned decision stands for the simple proposition that flooding that was the predictable result of the Government’s own actions and that was so severe as to substantially interfere with owners’ use and enjoyment of their property will constitute a taking. Affirmance of such a modest decision threatens no legitimate policy interest, and “augurs no deluge of takings liability.” *Id.*

II. THE CFC CORRECTLY FOUND THAT MRGO CAUSED CATASTROPHIC FLOODING ON PLAINTIFFS’ PROPERTIES.

A. The Government Does Not Meaningfully Dispute the Sufficiency of the Causation Evidence.

In *Robinson*, the Government did not appeal the finding that MRGO caused devastating flooding in the Polder during Katrina. Here, the Government again does not meaningfully dispute the evidence supporting the CFC’s finding that MRGO

caused this catastrophic flooding. To be sure, the Government broadly asserts that Plaintiffs failed to prove causation, but it offers four narrow, technical arguments that largely skirt the core causation question. US47-64. For example, the Government claims (incorrectly) that the CFC never found that the levees would not have breached but-for MRGO, US53, but it does not dispute that the CFC made a host of other findings that lead ineluctably to that conclusion. And although the Government claims (incorrectly) that the testimony of one of Plaintiffs' experts was insufficient to prove causation standing alone, US55, it does not challenge any of the other record evidence proving causation.

A brief review of what is *not* disputed on appeal goes a long way towards rebutting the Government's limited objections.

First, the Government does not dispute that sufficient evidence supports the CFC's findings that MRGO significantly amplified the strength of storms including Katrina. Appx18345-18364. The Government does not dispute that MRGO decimated the Polder's wetlands, which operate as natural "horizontal levees," Appx18355 (quoting Appx11330), and "minimize the storm surge" by "slowing down the waves and reducing their destructive power," Appx18355 (citation omitted). The Government does not challenge the CFC's findings that MRGO caused severe bank erosion, greatly widening the channel, enabling bodies of water surrounding the Polder "to carry significantly more water at higher velocities,"

Appx18353 (quoting Appx10361), and increasing “the severity of wave attack on the [Reach 2] levee,” Appx18354 (quoting Appx10151). Nor does it dispute that MRGO was a “superhighway for storm surges,” Appx18358 (quoting Appx66582), creating a funnel effect that “substantially increas[ed] storm surge to higher elevations,” Appx18359, and enlarged the “load” or amount of water conveyed into populated areas, Appx18361 (quoting Appx66582).¹¹

Second, the Government does not dispute that sufficient evidence supports the CFC’s finding of a near-perfect correlation between whether a levee breached during Katrina and whether it was adjacent to MRGO. The Government does not dispute that “all of the [relevant] LPV structures that breached were adjacent to some part of the MRGO project,” whereas “no LPV structures separated from artificial channels breached.” Appx18363 (quoting Appx10162). This undisputed finding—alone or when paired with the undisputed finding that the area suffered some of the worst flooding despite having some of the highest natural elevation, Appx18362, Appx10159—sustains the CFC’s ultimate finding of causation. *See also* Appx10210-10211.

¹¹ *See also* Appx40213, Appx40013, Appx47244-47246, Appx52044, Appx61450-61451, Appx62050-62052, Appx66581-66582, Appx10151, Appx10235-10238, Appx10354, Appx12469-12535.

Third, the Government does not dispute that sufficient evidence supports the CFC's finding that MRGO caused the Reach 2 levees to breach earlier than they would have but for MRGO, even assuming (counterfactually) they would have breached at all.

The *breaching* of these levees is important because it was undisputed both in *Robinson* and here that water coming through breaches of the Reach 2 levee "was by far the greatest source of water that entered the polder, greatly exceeding all other sources," and that separate "breaches along the IHNC Floodwall 'did not impact the flooding of the St. Bernard basin.'" Appx20344 (quoting Appx17962, Appx17965). *See also* Appx20371, Appx12562-12563 ("between 88 and 90 percent of flooding in the Lower Ninth Ward was the result of breaches along Reach 2"), Appx12902, Appx10210. The Government has not disputed these points before this Court. *See* US62.

The *timing* of the Reach 2 breaches is important because the developed portion of the Polder is separated from the Reach 2 levees by the CWU and Forty Arpent Levee. To flood Plaintiffs' properties, the Reach 2 levees had to breach early enough to allow sufficient time for the CWU to fill with enough water to overtop the Forty Arpent. If those breaches had happened later, the storm would have moved too far north for enough water to fill the CWU, overtop the Forty Arpent, and cause catastrophic flooding. Appx18328-18329, Appx18362-18363 (extent of damage was

driven by timing and movement of storm); *see also* Appx10202-10208, Appx10210. Simply put, had the Reach 2 levees remained intact somewhat longer (as, at a minimum, they would have absent MRGO), the CWU would not have filled, the Forty Arpent would not have overtopped, and Plaintiffs' properties would not have flooded. *See also* Appx39215-39220, Appx10241-10243, Appx10325-10356, Appx12562-12570, Appx12577-12581; *Robinson*, 647 F. Supp. 2d at 679-95.¹²

The Government does not dispute that sufficient evidence supports the CFC's finding—here quoting Dr. Kemp, one of Plaintiffs' experts—that MRGO caused the Reach 2 levees to endure “a higher intensity of wave attack than would have occurred if [MRGO] were not there or [were] farther away.” Appx18363 (quoting Appx10162). It does not deny that these levees “were exposed to greater stress ... for a longer period [of time] than would have occurred during Katrina if the MRGO project had never been built” or maintained as it was. Appx18363 (quoting Appx10164). *See also* Appx10250, Appx10324, Appx38093, Appx12530-12531.

¹² In *Robinson*, the plaintiffs argued that frontside wave attacks caused the breaches, while the Government attempted to minimize MRGO's role by arguing that the levees were destroyed by backside erosion after they were overtopped. 647 F. Supp. 2d at 682. The *Robinson* court rejected the Government's theory because of the timing point discussed in text: overtopping could only have caused the levees to breach much later in the storm sequence (when the surge was higher), by which time the storm would have been too far along to fill the CWU and overtop the Forty Arpent as it did. *Id.* at 686-87, 689. The Government abandoned its rejected backside-erosion theory here and argued only that Plaintiffs' evidence was inadmissible and insufficient.

And, critically, the Government does not dispute that the foregoing evidence is sufficient to establish that “the inundation started *earlier* in the surge sequence” than it otherwise would have because “*the onset of breaching and flooding was advanced by the presence of the MRGO.*” Appx18362 (quoting Appx10161) (emphases added). See also Appx61852-61861, Appx10325-10356, Appx12562-12570, Appx12577-12581.

Together, these unchallenged facts compel the conclusion that has been reached by both federal trial judges and approved by all three federal appellate judges to study this issue: the “substantially increased storm surge-induced flooding of Plaintiffs’ properties that occurred during Hurricane Katrina ... was the direct result” of the Government’s actions. Appx18367.

**B. The CFC Correctly Refused To Consider the
Impact of Unrelated Projects Such as the LPV.**

Unable to contest these findings demonstrating that absent MRGO, Plaintiffs’ properties would not have flooded, the Government argues that the CFC should have addressed a different causation question: would the flooding experienced by Plaintiffs’ properties have occurred in the absence of *both* MRGO *and* the separate LPV levee project? US47-48. But as both the district court and the Fifth Circuit held in *Robinson*, MRGO and the LPV were separate, unrelated projects, *Robinson*, 696 F.3d at 447-48; *Robinson*, 647 F. Supp. 2d at 699, and the CFC did not clearly err in reaching the same conclusion. The two projects were authorized by Congress at

different times and for different purposes. Appx8310-8312; Appx18363. MRGO was a navigation project, and the LPV was a flood protection project; if MRGO had never been constructed, the levees would still have been constructed.¹³

The Government cannot defeat Plaintiffs' claim by pointing to benefits provided by the separate LPV project, any more than it could seek an offset because Plaintiffs' property values may have been enhanced by other unrelated Government services (such as police rather than levee protection). An offset may be allowed only where land is enhanced in value by "the project for which the landowner's land is condemned." *John B. Hardwicke Co. v. United States*, 467 F.2d 488, 490 (Ct. Cl. 1972); *see also City of Van Buren v. United States*, 697 F.2d 1058, 1061-62 (Fed. Cir. 1983). By contrast, "a benefit that results from a separate decision of the government, rather than from the project for which the condemnation is made, should not be offset," and "benefits that are caused by other projects, whether previous or subsequent, cannot be deducted." 26 AM. JUR. 2D, EMINENT DOMAIN § 334. If the rule were otherwise, just compensation would be the exception rather than the rule, for the Government can almost always identify ways it has supported property values.

¹³ The only connection between the two projects is that some of the spoil from the dredging of MRGO was used to help build some of the Reach 2 levees. Appx10150.

The Government's cases follow this settled rule that if the government project alleged to effect the taking provided benefits, those benefits may sometimes be considered. *United States v. Sponenbarger*, 308 U.S. 256, 266-67 (1939), suggested only that flooding caused by the challenged flood-control project was offset by benefits provided by the *same project*. *Cary* suggested in *dicta* that where plaintiffs alleged that fire-suppression policies effected a taking, they cannot ignore aspects of the *same challenged policies* that "reduc[ed] the risk of wildfire." 552 F.3d at 1377 n*. And *Arkansas Game* noted in *dicta* the parties' agreement that, where the plaintiffs challenged water releases from a dam, courts may look at flooding that occurred before that *same dam* was built. 736 F.3d at 1372. The Government cites no case where a court considered the effects of unrelated government activity, either as part of the causation analysis or as an offset in the calculation of compensation.

Even if the Court could consider unrelated projects, the Government's argument still must be rejected. First, the Government "fail[ed] to distinguish general from special benefits." *Van Buren*, 697 F.2d at 1062. By not identifying "specific benefits [to the plaintiffs], [but] instead relying ... on a listing of the public benefits that flow from nearly all flood control projects," the Government's argument is, "[a]s a matter of law, ... insufficient to vitiate [Plaintiffs'] taking claim." *Id.*

Second, even if the LPV project is considered, the levees breached during Katrina and thus provided no protection. The relevant question would be whether

harm caused by MRGO was outweighed by the LPV's flood protection "when measured in the whole" (i.e., at other times), *Sponenbarger*, 308 U.S. at 266, but the Government never quantified those benefits, which is fatal because it bore the burden to prove offsets, *CCA Assocs. v. United States*, 667 F.3d 1239, 1245 (Fed. Cir. 2011). Third, the *Sponenbarger* offset analysis applies only when the damage is so "slight" that the Government has "in substance take[n] nothing from the landowner," *Van Buren*, 697 F.2d at 1062 (alteration in original) (quoting *Sponenbarger*, 308 U.S. at 267), but the devastation here is anything but *de minimis*. Finally, the Government claims that the "only evidence," US49, about the legally-irrelevant question of flooding without the levees came from the Government's effort to relitigate causation at the valuation trial, but as explained *infra* at 66-71, the CFC did not abuse its discretion in discounting that evidence.

C. The CFC Found "But For" Causation.

The Government next challenges the sufficiency of the CFC's fact-finding, claiming that its comprehensive opinions are bereft of "any finding that, but for the Corps' [activities], plaintiffs' property would not have flooded" during Katrina. US51. This challenge is meritless.

1. The Government cannot deny that the CFC found that the Government "caused" the catastrophic flooding during Katrina, Appx18367, and that this flooding was the "direct result" of the Corps' MRGO-related activities, Appx18367; *see*

also, e.g., Appx18345, Appx18351, Appx18363-18364, Appx18375, Appx20332. Instead, the Government misdirects the Court to a different question. The Government argues that the CFC's finding that Plaintiffs' properties would not have flooded but for MRGO cannot be sustained because the CFC did not also make a subsidiary finding that "the levees would not have breached but for the presence of MRGO." US53-54. But the CFC plainly did find the levees would not have breached absent MRGO. In any event, as previously explained, the Government does not dispute that, at a minimum, the levees breached *earlier* than they would have absent MRGO, and the catastrophic flooding could not have occurred if the breaches occurred later in the storm system.

The Government does not dispute (and in some respects explicitly concedes, US53), all the facts that lead to the conclusion that MRGO caused the levees to breach (and to breach *when* they did). In particular, it does not deny that the CFC found MRGO amplified the effects of storms, and caused levees to sustain more forceful surge and wave attacks than they otherwise would have. Nor does it dispute that the CFC found that all of the flood-causing levee breaches were adjacent to MRGO. *See supra* at 48-53.

Most importantly, the CFC found that the levees would not have breached but-for the presence of MRGO. And at a bare minimum, it is unchallenged that the CFC found MRGO caused the Reach 2 levees to breach earlier than they otherwise

would have during Katrina, which in turn caused the CWU's basin to fill with enough floodwaters to catastrophically overtop the Forty Arpent.¹⁴ Crediting and quoting Dr. Kemp, the CFC found that "the onset of breaching and flooding was advanced by the presence of the MRGO," and that this "breaching was initiated by the excess stress applied to LPV structures," including "a higher intensity of wave attack [along Reach 2] than would have occurred if [MRGO] were not there or farther away." Appx18363.¹⁵ The CFC noted that some levees "failed during the passage of Katrina, while others did not," and it found that MRGO "spelled the difference" between mere overtopping (without breaches) and "catastrophic flooding through breaches" that resulted only because the Reach 2 levees were "exposed to greater stress ... for a longer period [of time] than would have occurred during Katrina if the MRGO project had never been built and maintained" as it was. Appx18363-18364. Moreover, the CFC credited Kemp's testimony discussing at

¹⁴ In other words, assuming counterfactually that the Reach 2 levees would have breached during Katrina even absent MRGO, the levee would have held long enough for the storm to have passed harmlessly to the north.

¹⁵ The CFC also found, based on substantial evidence, that MRGO created a funnel that significantly increased conveyance of surge and waves through Reach 1. Appx18361, Appx18363; *see also, e.g.*, Appx10250.

length how MRGO caused the levees to breach and summarizing the record evidence of causation. *See infra* at 62-63.¹⁶

These findings unquestionably sustain the CFC's ultimate finding that the Government's MRGO-related activities caused the flooding. The CFC's findings need only be "sufficient to indicate the factual basis for the ultimate conclusion." *Kelley v. Everglades Drainage Dist.*, 319 U.S. 415, 422 (1943). Such findings "are to be construed liberally in support of a judgment," and this Court will "draw from the facts found those inferences that are necessary to support the ultimate finding." *ACS Hosp. Sys., Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1578 (Fed. Cir. 1984). The CFC's findings easily satisfy this deferential standard.¹⁷

2. The Government claims the CFC "confused the causation inquiry necessary here with what was done in *Robinson*," where plaintiffs had to prove "only" that MRGO was a "'substantial' factor" in causing the flooding under Louisiana law. US54-55. But the Government does not identify a single finding where the CFC

¹⁶ The Government claims that "Kemp conceded that MRGO was not the only cause of the flooding during the Hurricane," US54, but all he "conceded" was that the Government was not the original source of stormwaters. Appx11338.

¹⁷ The Government also argues that the CFC never found that properties outside the levees suffered increased flooding because of MRGO. US53. But the CFC did indeed find that MRGO's environmental impacts affected properties outside the federal levees no less than those inside, and thus caused increased flooding on those properties. Appx18331, Appx18357-18358. *See supra* at 12.

applied a “substantial factor” test. In any event, in Louisiana, “conduct is a substantial factor if the harm would not have occurred without the conduct, i.e., but for defendant’s conduct.” *Rando v. Anco Insulations Inc.*, 16 So. 3d 1065, 1089 (La. 2009). *See also Robinson*, 647 F. Supp. 2d at 681-97, 733 (finding but-for causation). Any overlap between the CFC’s findings and *Robinson* is attributable not to the CFC’s “confusion” but rather to the overwhelming evidence of causation.

3. The Government concedes that it may be liable if its activities “resulted in flooding ‘actually experienced’ that was greater than the flooding that would otherwise occur.” US52. This is consistent with its concession before the CFC that it would be liable if MRGO “proximately caused more frequent flooding or flooding of a longer duration than that which occurred prior to the Project.” Appx459.

Nevertheless, the Government’s brief, *e.g.*, US51, suggests that Plaintiffs must prove that not a drop of water would have flooded their property but for MRGO, and that the Government is not liable for a taking even if it caused much more severe flooding than would have otherwise occurred. Any such argument is waived, for the Government not only failed to raise it in the CFC, it conceded it would be liable for any incremental flooding caused by MRGO. US52; Appx459; *see Boggs*, 188 F.3d at 1337-38.

In any event, it is clear that the Government is liable under the Fifth Amendment if it causes substantial incremental flooding on property that might have suffered some flooding absent the Government's actions. *Arkansas Game* itself found a taking where the plaintiff's land would have suffered some flooding absent the Government's activities. 736 F.3d at 1367-68; *see also Sponenbarger*, 308 U.S. at 266; *Ridge Line*, 346 F.3d at 1351; *Accardi v. United States*, 599 F.2d 423, 430 (Ct. Cl. 1979); *King*, 427 F.2d at 768-69; *Payne*, 368 F.2d at 75-76; *Jacobs v. United States*, 45 F.2d 34, 36-37 (5th Cir. 1930).

The Government's remaining cases do not establish a contrary rule. *Arkansas Game* explained, 133 S. Ct. at 520, that the landowner in *Sanguinetti* "failed to show a causal connection between the canal and the increased flooding," but that if causation had been established, a taking would have been found. The Government concedes that *Danforth v. United States*, 308 U.S. 271, 286 (1939), recognized liability when the government causes flooding "greater than the flooding that would otherwise occur." US52. *Danforth*'s statement that flooding "for a somewhat longer period" causing some unquantified "increase in depth or destructiveness" of flooding was not actionable in that case, 308 U.S. at 286, concerned property that would have suffered catastrophic flooding in any event. The claims in the remaining cases failed for fact-specific reasons not applicable here. *United States v. Archer*, 241 U.S.

119, 132 (1916) (insufficient evidence of causation); *Bartz*, 633 F.2d at 577 (consequential injury); *Columbia Basin*, 132 F. Supp. at 709 (same); *Coates v. United States*, 110 F. Supp. 471, 475 (Ct. Cl. 1953) (insufficient evidence of causation).

D. The Government’s Other Challenges to the “Sufficiency of the Evidence” Fail.

The Government next claims Plaintiffs presented “insufficient evidence” of causation, US55-58, but it actually only challenges the CFC’s reliance on one expert’s testimony and accuses the CFC of “tacitly adopt[ing]” the *Robinson* decision rather than evaluating the record evidence in this case. US56. Both arguments fail.

1. The Government claims that Dr. Kemp was not qualified to testify about the cause of levee breaches. US55. Even if this argument had merit (it does not), it fails to prove that Plaintiffs presented insufficient evidence of causation, for Dr. Kemp’s testimony was far from the only evidence on this point. The parties presented three days of live testimony and hundreds of exhibits during the liability trial, many of which bear on causation. Appx18289-18299. This record contains innumerable scientific studies and reports—*none of them* disputed by the Government on appeal—explaining that the Reach 2 levees would not have breached, and the Polder would not have suffered catastrophic flooding, if the Government had not constructed, operated, and maintained MRGO as it did. *See, e.g.*, Appx129281, Appx129319-129322, Appx61506, Appx61515, Appx61533-61534, Appx61874,

Appx61852-61861, Appx62438-62446, Appx63658-63662, Appx88305-88309, Appx39215-39220.

The Government does not argue—because it cannot plausibly argue—that this entire record is insufficient to sustain the CFC’s finding of causation. The Government does complain that the *Robinson* experts “did not testify” in this case, US55, but the evidence did not consist entirely of *Robinson* expert reports, and even if it did, those reports are in evidence and the Government does not argue the CFC abused its discretion in admitting them. Nor did the CFC rely exclusively on Dr. Kemp’s testimony; indeed, many of its sources are the Government’s own admissions, and this Court both presumes the CFC reviewed all the evidence, *Medtronic, Inc. v. Daig Corp.*, 789 F.2d 903, 906 (Fed. Cir. 1986), and may affirm on any basis in the record, *Samish Indian Nation v. United States*, 419 F.3d 1355, 1364 (Fed. Cir. 2005). And, of course, the CFC did not abuse its discretion by relying upon and quoting Dr. Kemp’s comprehensive summary of the causation evidence. *United States v. Lemire*, 720 F.2d 1327, 1347 (D.C. Cir. 1983).

In any event, Dr. Kemp was qualified in his own right to provide all the testimony necessary to establish causation. He is one of the world’s foremost experts in hurricane flooding, the hydrodynamic modeling of waves and storm surge, and wet-land effects on storm waves and surge. Appx18279, Appx10124, Appx10128-10142. He helped lead “Team Louisiana,” a research team that studied the failure

of the levees, Appx10140-10141; he also served as lead testifying expert in *Robinson* and coordinated much of the modeling analysis, Appx10141-10142, Appx10219.

The Government does not dispute that Dr. Kemp was qualified to provide the large bulk of his testimony concerning how MRGO amplified the hydrodynamic effects of storms. Nor does the Government deny that “[m]echanisms of levee breaching are derivative of funnel hydrodynamics,” Appx10226, the latter falling squarely within Kemp’s expertise. It was entirely appropriate for Dr. Kemp to reference the wealth of scientific evidence in the record from closely related fields to support his conclusion that MRGO caused the levees to breach. *E.g.*, Appx10342. “[I]t is common in technical fields for an expert to base an opinion in part on what a different expert believes on the basis of expert knowledge not possessed by the first expert.” *Dura Automotive Sys. of Ind., Inc. v. CTS Corp.*, 285 F.3d 609, 613 (7th Cir. 2002); *see also Monsanto Co. v. David*, 516 F.3d 1009, 1015-16 (Fed. Cir. 2008). There is no reason a different rule should apply here.

2. The Government asserts that the CFC’s decision was secretly based on a “tacit adopti[on]” of *Robinson* rather than the comprehensive review of the law and facts that appears on the face of its opinion. US57. This Court presumes the CFC’s decision is based only on the evidence, *Bennett Box & Pallet Co. v. United States*, 218 Ct. Cl. 636, 640 (1978), and the Government’s baseless charge does not rebut that presumption.

The Government rests its remarkable claim on the thin reed of two isolated statements. First, the CFC correctly stated, in the introduction to its Liability Decision, that the *Robinson* factual findings were “not disturbed” on appeal, Appx18304, and indeed they were not—the Fifth Circuit praised the thoroughness and accuracy of the findings, *see Robinson*, 696 F.3d at 443. This accurate description of the background does not constitute “adoption,” “tacit” or otherwise, of the *Robinson* findings. Likewise, the CFC’s correct statement that the Fifth Circuit initially “affirmed” the *Robinson* decision, Appx20374, cannot be transmogrified into adoption of those findings. Indeed, this statement appears as a post-script to the CFC’s *Valuation Decision*, so it is hard to see how it somehow suggests the CFC’s Liability Decision one year earlier was based on blind acceptance of *Robinson*.¹⁸

At bottom, it is not surprising that the CFC, after carefully considering all of the evidence that was submitted in both *Robinson* and this case, as well as the additional evidence and testimony submitted only in this case, reached the same causation finding as the *Robinson* district court and the unanimous Fifth Circuit panel. To

¹⁸ Paradoxically, the Government claims that the CFC improperly “failed to appreciate” or “ignored” other aspects of *Robinson*. US57-58. As explained, the CFC’s decision must be reviewed on its own terms, and the Government has not meaningfully disputed that the evidence at the liability trial, which included evidence that had also been admitted in *Robinson*, was sufficient to hold the Government responsible for the flooding on Plaintiffs’ property.

say the least, that congruence does not suggest that those findings are clearly erroneous.

E. The CFC Correctly Held the Government Liable for the Damage It Caused.

The Government claims the CFC erred by refusing to credit Government experts who sought to relitigate causation at the valuation trial. US59-64. The CFC did not abuse its discretion in its handling of this testimony.

The Government's claim is premised upon the bald assertion that "[t]he only evidence demonstrating what, if anything, the plaintiffs lost as a result of the taking," was testimony that the Government introduced at the valuation trial from its new causation experts, Dr. Westerink and Mr. Fitzgerald. US60 (alterations and quotation marks omitted). This is simply not true. As discussed, Plaintiffs presented overwhelming evidence at the *liability trial*—when the question of causation was properly before the CFC—that MRGO caused *all* of the catastrophic flooding on Plaintiffs' properties. In particular, everyone agreed at the liability trial that the early breaching of the Reach 2 levees caused the overwhelming majority of flooding in the Polder, and Plaintiffs submitted substantial evidence showing that MRGO caused the levees to breach.

After the liability trial, the CFC made clear that it had found a taking and scheduled a valuation trial where the parties would present appraisers to quantify the

compensation owed. The Government ignored this limitation and attempted to re-litigate causation, hiring Westerink and Fitzgerald to present new modeling that they could have presented at the liability trial.

The CFC refused to credit the Government's new causation evidence, finding that the Government's new experts presented unreliable, results-oriented, and litigation-driven testimony. Appx20344-20345. The Government offers retail-level arguments for why the CFC abused its discretion, but it does not address the very first reason the CFC gave for not crediting that testimony: the new causation experts "were introduced under the guise of damage experts to support 'a new causation analysis'" that had not been presented at the liability trial. Appx20344.

No party is entitled to "a second chance to marshal ... expert opinions," *Piscopo v. Secretary of Health & Human Servs.*, 66 Fed. Cl. 49, 55 (2005) (quoting *Nelson v. Tennessee Gas Pipeline Co.*, 243 F.3d 244, 250 (6th Cir. 2001)), and when a case is bifurcated, "[i]ssues fully resolved at the liability stage are not open for reargument in later stages." *United States v. Turtle Mountain Band of Chippewa Indians*, 612 F.2d 517, 520 (Ct. Cl. 1979). The CFC did not abuse its discretion in refusing to credit the Government's attempt to relitigate causation. *King v. United States*, 504 F.2d 1138, 1140 (Ct. Cl. 1974) (rejecting Government's attempt to relitigate flooding liability at bifurcated just-compensation trial by submitting "new hydrology studies" and other evidence).

The Government offers three criticisms of the CFC's other grounds for concluding that Westerink and Fitzgerald were not credible. But "witness credibility determinations are virtually unreviewable," *Jones v. HHS*, 834 F.3d 1361, 1368 (Fed. Cir. 2016) (quotation marks omitted), and a judge's internally consistent decision to credit the testimony of one witness over another "can virtually never be clear error." *Anderson v. City of Bessemer City*, 470 U.S. 564, 575 (1985). The Government does not come close to surmounting this high bar.

First, the CFC did not abuse its discretion in concluding that the witnesses' testimony "was in direct conflict with the Government's prior admissions and testimony in *Robinson*." Appx20344-20345. Their testimony at the valuation trial purported to show "that the IHNC Floodwall breaches"—not MRGO Reach 2 breaches—"were the principal cause of flooding" in western areas of the Polder. Appx20344. This proof was diametrically opposed to the Government's agreement over the past decade that "breaches along the IHNC Floodwall '*did not impact* the flooding of the St. Bernard basin,'" Appx20344 (quoting Appx17965) (emphasis added), and that Reach 2 breaches caused "between 88 and 90 percent of flooding in the Lower Ninth Ward," Appx12562-12563. *See also* Appx20344 (Reach 2 levee breaches responsible for "'by far the greatest source of water that entered the polder'" (quoting Appx17962)). There are few better reasons to reject a witness's tes-

timony than its inconsistency with other evidence and the witness's own prior statements. *Daewoo Eng'g & Constr. Co. v. United States*, 557 F.3d 1332, 1337-38 (Fed. Cir. 2009); *Surface Tech., Inc. v. U.S. Int'l Trade Comm'n*, 801 F.2d 1336, 1340 (Fed. Cir. 1986); *Shapiro v. HHS*, 105 Fed. Cl. 353, 359 (2012), *aff'd*, 503 F. App'x 952 (Fed. Cir. 2013).¹⁹

Second, contrary to the Government's suggestion, US63, the CFC would have been well within its discretion to apply a form of judicial estoppel. But the CFC need not rely on that doctrine, for it found their testimony *unreliable* because of its conflict with the Government's prior proof (which included the witnesses' own prior work).

Third, the CFC did not abuse its discretion in concluding "that the government instructed its experts not to consider various factors in forming their opinions." US63. It is entirely proper for a trial court to exclude result-oriented, litigation-driven expert testimony "crafted ... specifically for purposes of litigation." *EEOC v. Kaplan Higher Educ. Corp.*, 748 F.3d 749, 751 (6th Cir. 2014). The Government does not deny Westerink and Fitzgerald were "instructed by the Government's counsel not to consider any scenario that removed the effects of the IHNC breaches to

¹⁹ See also *Robinson*, 647 F. Supp. 2d at 690-91 (criticizing Fitzgerald's testimony as unreliable).

isolate the effect of the MR-GO breaches.” Appx20345. Indeed, Westerink and Fitzgerald conceded as much at trial. Appx17065, Appx17132. Worse still, Fitzgerald acknowledged in his *Robinson* testimony that the proper way to “isolate the effect of the water from the IHNC breaches” was to model Katrina assuming the IHNC floodwalls did not breach—the very scenario he was told by counsel *not* to model in this case. Appx143965.

Finally, even if this Court were to conclude that the CFC abused its discretion by rejecting the Government’s attempt to relitigate liability, any error is harmless. The Government has claimed only that the CFC erred by rejecting the relevance of two scenarios that the Government’s new experts ran, US61, but those scenarios are legally and factually irrelevant. The first scenario purports to analyze how much flooding would have occurred absent the federal levees (Scenario E). This scenario relies upon the Government’s erroneous argument that it is entitled to a benefit because of the levees. *See supra* at 53-56. The second scenario (Scenario C) purports to examine flooding under the assumption that “MRGO alone had not been built and the levees had breached.” US61. This scenario rests on the Government’s erroneous claim that “the CFC never made a finding whether the levees would have breached absent MRGO.” US60. But as explained previously, this scenario is irrelevant because the CFC found MRGO was responsible for the early breaching of the Reach 2

levees, and thus the catastrophic waters that quickly filled the CWU and then inundated the Polder. *See supra* at 48-53, 56-59.²⁰

JUST COMPENSATION

I. THIS COURT LACKS JURISDICTION TO REVIEW THE PRELIMINARY DECISION REGARDING TAX REVENUE.

The Government objects to the CFC's preliminary award of lost tax revenue to New Orleans, US64, but this issue is not before the Court.

“A judgment is not final for Rule 54(b) purposes unless it is ‘an *ultimate* disposition of an *individual* claim entered in the course of a multiple claims action.’” *W.L. Gore & Assocs., Inc. v. International Med. Prosthetics Research Assocs., Inc.*, 975 F.2d 858, 861-62 (Fed. Cir. 1992) (citation omitted). Rulings made “where assessment of damages or awarding of other relief remains to be resolved have never been considered to be ‘final’ within the meaning of 28 U.S.C. § 1291.” *Liberty Mut. Ins. Co. v. Wetzel*, 424 U.S. 737, 744 (1976). Accordingly, this Court has rejected Rule 54(b) appeals where the CFC did not finally determine damages. *See Houston Indus. Inc. v. United States*, 78 F.3d 564, 568 (Fed. Cir. 1996).

²⁰ The Government argued before the CFC that it should have considered Scenario A2, where MRGO was built and the IHNC floodwalls breached but the Reach 2 levees did not. The Government has not made that argument (which primarily impacts the Lower Ninth Ward) here, and it is therefore waived. It is also meritless, particularly given the Government's own admission, repeated in this Court, that “breaches along the IHNC Floodwall *did not impact* the flooding of the St. Bernard Basin.” US62 (quoting Appx20344) (emphasis added).

The CFC determined that New Orleans “is entitled to lost real estate taxes for 2006 and 2007,” but it did not finally determine the amount of damages. Appx20376. Instead, the CFC instructed the parties to brief the total amount of damages owed “while appellate proceedings in this case proceed.” Appx20373; *see also* Appx20375 (CFC will issue orders to New Orleans and the Parish “to finalize the amount of Just Compensation due”). Accordingly, the Court lacks jurisdiction to consider the CFC’s tax revenue rulings.

We must nevertheless briefly respond to the Government’s baseless rhetoric accusing the CFC of a “serious departure from the appropriate judicial role.” US64. The Government criticizes the CFC for “raising the property-tax theory *sua sponte*,” US66, but judges “are not wallflowers or potted plants,” and their active engagement with the calculation of damages “is rather to be commended than condemned.” *Ta-gatz v. Marquette Univ.*, 861 F.2d 1040, 1045 (7th Cir. 1988). This Court has held that courts may award damages according to a theory that “neither party in that case addressed” and that was instead “*sua sponte* raised” by the court. *Hi-Shear Tech. Corp. v. United States*, 356 F.3d 1372, 1382 (Fed. Cir. 2004).

The Government also accuses the CFC of impropriety for consulting what everyone agrees are public tax records, and are thus part “of that body of public records of which the courts take judicial notice.” *See Caha v. United States*, 152 U.S. 211, 221-22 (1894). *See also Rothe Dev. Corp. v. Department of Def.*, 545 F.3d

1023, 1045-46 & nn. 15-16 (Fed. Cir. 2008). And the Government fails to inform the Court that *it expressly suggested that the CFC independently consult these very public records*. The CFC informed the parties on at least three separate occasions that it might calculate damages based on property tax records. Appx13082, Appx18245, Appx18611-18612. Specifically, in 2015, the CFC asked the Government “to make the necessary arrangements” to allow the CFC to study tax records. Appx18245. In two separate responses, the Government declined, advising the CFC that it should independently review the public records “through the public, online search engines established by both the Orleans and St. Bernard Parish governments.” Appx19321-19322; *see* Appx18251, Appx18264. At the Government’s suggestion, the CFC consulted these online records, but because they did not contain all relevant information, the CFC requested the remaining documents from the appropriate records custodians. Appx19322-19323. *See also* Appx19905-19908. The Government’s complaint that the CFC did precisely what it suggested comes with poor grace.

II. THE CFC PROPERLY REFUSED TO OFFSET THE ADAMSES’ RECOVERY BY ROAD HOME PAYMENTS.

The Government argues that the CFC should have offset the Adams Plaintiffs’ compensation by funds they received under the Road Home Program, lest the Adams receive “a windfall.” US70. The Government neglects to mention what the CFC emphasized: the Adamses’ Road Home contract with Louisiana requires them to

assign to Louisiana proceeds they receive from a federal agency for physical damage caused by Katrina. Appx20362. This subrogation requirement precludes a double recovery. *Shelden v. United States*, 34 Fed. Cl. 355, 370 (1995); *Robinson*, 647 F. Supp. 2d at 736 (Road Home money not an offset).

Moreover, the Adamses' Road Home contract was with *Louisiana*, not the United States. Appx20362. The CFC correctly concluded that the Government lacks standing to claim offsets based on third-parties' contracts. *Id.* The Government's cases, US70, are not to the contrary, because none allows an offset based on benefits the plaintiff received under a contract with a third party. And the CFC wisely left subrogation to collateral proceedings. The Adamses had to agree to burdensome covenants in exchange for Road Home money, including promises to use their property for residential purposes for three years and purchase flood insurance in perpetuity. Appx20362. The Road Home money cannot qualify as "just compensation," because the Government cannot unconstitutionally condition compensation on an agreement to sacrifice additional property rights. This Court would have to determine what portion (if any) of the Road Home money must be repaid to Louisiana, and whether repayment extinguishes the covenants that now run with the land. And because the Road Home money only covers damage to improvements, Appx20361, it cannot count as an offset against a rental award or diminution-in-land-value award.

III. THE CFC CORRECTLY REFUSED AN OFFSET FOR THE PARISH'S CONTRIBUTION TO REPAIR COSTS.

The Government argues the CFC erred by refusing to reduce the Parish's compensation by funds the Parish itself contributed, through its flood insurance proceeds, to repair destroyed improvements. US67. Before the CFC, however, not only did the Government not request an offset in the amount of insurance proceeds, it conceded that "insurance proceeds" are something that "might be considered collateral and for which the United States has not claimed an offset." Appx18101. Thus the argument is waived and any error was invited. *Key Pharm. v. Hercon Labs. Corp.*, 161 F.3d 709, 715 & n.1 (Fed. Cir. 1998).

In any event, the Government's argument fails. The CFC relied upon the Government's Stafford Act estimates to quantify the damage to improvements on the three improved Parish properties, but under that Act, the Government paid the repair cost *less* the amount the Parish contributed in insurance proceeds. Appx20361. Thus the CFC found that the Government still owes the \$893,363 the Parish contributed. *Id.* "[F]or all that the Government takes it must pay," *Dickinson*, 331 U.S. at 750, and so the Government must pay this balance.

Significantly, the Government has never requested an offset for *private Plaintiffs'* insurance proceeds, and there is no reason the Parish should be treated differently. The federal courts have concluded that "[t]he proceeds of an owner's insurance policy covering loss do not constitute just compensation from the government."

American Pelagic Fishing Co. v. United States, 55 Fed. Cl. 575, 592 (2003), *vacated on other grounds*, 379 F.3d 1363 (Fed. Cir. 2004); *see also Sheldon*, 34 Fed. Cl. at 371-72 (dicta).

The Government ignores the Fifth Amendment and focuses instead on the collateral source rule. It claims the rule applies only in tort contexts, but case law and scholarship “rebut[] the fairly widespread—perhaps superficial—belief that the collateral source rule is confined to tort or tort-like claims.” Joseph M. Perillo, *The Collateral Source Rule in Contract Cases*, 46 SAN DIEGO L. REV. 705, 707 (2009). And the rule’s tort underpinnings supports its application here because “[i]nverse condemnation law is tied to, and parallels, tort law.” *Ridge Line*, 346 F.3d at 1355.

The Government suggests the collateral source rule exists solely to deter wrongdoing, but it also “embodies the venerable concept that a person who has invested years of insurance premiums ... should receive the benefits of his thrift.” *Helfend v. Southern Cal. Rapid Transit Dist.*, 2 Cal. 3d 1, 9-10 (1970). This purpose coincides perfectly with that of the Fifth Amendment. If the defendant is allowed to benefit from the plaintiff’s foresight in purchasing insurance, the “plaintiff would be in a position inferior to that of having bought no insurance, because his payment of premiums would have earned no benefit,” *id.* at 10, and he will not be “in as good a position pecuniarily as if his property had not been taken,” *Olson v. United States*, 292 U.S. 246, 255 (1934).

The Government does not cite a single takings case declining to apply the collateral source rule to insurance proceeds. Its two State court decisions, US69, involved gratuitous offsets by third parties, and one case suggested the rule should apply where (as here) the plaintiff “incurred any expense in obtaining the benefit he received.” *Smith v. County of Los Angeles*, 214 Cal. App. 3d 266, 291, 292 (1989). *LaSalle Talman Bank, FSB v. United States*, 317 F.3d 1363, 1372-73 (Fed. Cir. 2003), did not involve insurance proceeds either; it applied the contract-law duty to mitigate, holding that the plaintiff’s damages award should be offset by increased profits that were not “collateral” to the breach.

Finally, the Government claims the CFC erred by calculating damage to the improvements by using the Stafford Act amounts rather than appraisers’ estimates. US69. This was not clear error because “damage estimates based upon actual costs are preferred over estimates based on hypothetical costs.” *American Line Builders, Inc. v. United States*, 26 Cl. Ct. 1155, 1193 (1992); *see also Sensonics, Inc. v. Aero-sonic Corp.*, 81 F.3d 1566, 1572 (Fed. Cir. 1996); *Lilley-Ames Co. v. United States*, 293 F.2d 630, 633 (Ct. Cl. 1961).

PLAINTIFFS' CROSS-APPEAL

I. THE CFC SELECTED THE WRONG END DATE FOR THE TAKING.

The CFC erred in determining that the temporary taking ended on June 30, 2009, when the Corps closed MRGO. Appx18371. The end date is significant because the CFC calculated the rental award through that date. Appx20357.

The taking lasted so long as MRGO exposed Plaintiffs' properties to "intermittent, but inevitably recurring" flooding. Appx18366. Closing MRGO to navigation made at most a negligible contribution to protecting Plaintiffs' properties from the risk of recurring future flooding. Appx10181; *see also Otay Mesa Prop., LP v. United States*, 670 F.3d 1358, 1368 (Fed. Cir. 2012). That risk ended (at the earliest) on June 1, 2011, when the Corps substantially completed the new HSDRRS "risk reduction" levee system with its new robust levees and floodwalls and massive multi-billion-dollar surge barrier. *See* Appx18332-18333, Appx20355, Appx11293. Accordingly, the CFC should have awarded rental damages through June 2011.

II. THE CFC ERRED BY REFUSING TO AWARD RENTAL VALUE TO THE PARISH.

The CFC erred by declining to award a rental value for the Parish's properties, even as it awarded such a value to private Plaintiffs. Appx20355. "The usual measure of just compensation for a temporary taking is the fair rental value of the property for the period of the taking," *Otay Mesa*, 670 F.3d at 1364, and "the same principles

of just compensation presumptively apply to both private and public condemnees,” *United States v. 50 Acres of Land*, 469 U.S. 24, 31 (1984). For this reason, courts routinely award a rental value compensation to State and local governments. *E.g.*, *Economic Dev. & Indus. Corp. of Boston v. United States*, 13 Cl. Ct. 590, 594, 604 (1987). The Government never argued in the CFC that the Parish should be treated differently with respect to rental value, and it has not appealed the CFC’s decision to award rental value to private landowners. There is no reason the Parish should not be entitled to the same compensation.

The CFC treated the Parish differently because the Parish’s “properties were held and used for public purposes.” Appx20355. But virtually *every* governmental property is held and used for public purposes. To the extent the CFC suggested there is no rental market for the Parish’s properties, that is belied by the record, as the Government’s own experts calculated their rental value. Appx16434 (“loss of use”). Moreover, “[w]here, for any reason, property has no market,” the solution is not to deny compensation; rather, “resort must be had to other data to ascertain its value.” *United States v. Miller*, 317 U.S. 369, 374 (1943). Here, the Government’s own experts provided the necessary data.

III. THE CFC ERRED BY DECLINING TO AWARD COMPENSATION FOR THE PERMANENT DIMINUTION IN LAND VALUE.

The CFC applied the wrong legal test when it declined to award compensation for the permanent diminution in the value of Plaintiffs’ land. The CFC agreed that

Plaintiffs' land diminished in value, but it held that Plaintiffs should receive no compensation because "other factors contributed to that loss—most notably the financial crisis in the housing market that began in 2008." Appx20349.

Even if other factors contributed to the decline in value since 2005, Plaintiffs are entitled to recover that portion attributable to MRGO. In *Kimball Laundry*, the Court held that the landowner subjected to a temporary taking was entitled to "damage to its machinery and equipment in excess of ordinary wear and tear." 338 U.S. at 7. Although other factors may contribute to damage—be they ordinary wear and tear, or a downturn in the housing market—the Government is liable for that portion of the diminution it has caused.

The CFC called those damages "too speculative," Appx20349, but the essentially undisputed evidence establishes that MRGO caused substantially all the diminution. Plaintiffs' expert, Mr. Marshall, extensively studied the issue and tied this diminution to the Government's MRGO-related activities, concluding that the housing crisis was *not* responsible for the diminution. Appx15968-15996. The Government's experts did not rebut this testimony.

IV. THE CFC ERRED BY AWARDING INTEREST AT THE ONE-YEAR TREASURY RATE.

The CFC erred by awarding interest at the historically low one-year Treasury rate. Appx20359. Plaintiffs are entitled to interest at the rate "a reasonably prudent person investing funds so as to produce a reasonable return while maintaining safety

of principal would receive.” *United States v. 429.59 Acres of Land*, 612 F.2d 459, 465 (9th Cir. 1980) (quotation marks omitted). To determine the appropriate rate, courts look “to the economic circumstances prevailing in the years between the date of the taking and the date of payment.” *Georgia-Pacific Corp. v. United States*, 640 F.2d 328, 365 (Ct. Cl. 1980).

“Interest rates on U.S. Treasury securities have been kept artificially low since the financial crisis of 2008,” *Sears v. United States*, 124 Fed. Cl. 730, 735 (2016), and it is unrealistic to assume that a prudent investor would do the equivalent of stuffing money under a mattress for such a long time, *Biery v. United States*, 2012 WL 5914521, at *2-3 (Fed. Cl. Nov. 27, 2012). Indeed, the one-year Treasury rate has provided less than a one-percent return since September 2008. *See Daily Treasury Yield Curve Rates*, U.S. DEP’T OF TREASURY, <https://goo.gl/kgcP80>. The CFC selected this rate because it is used in the Declaration of Takings Act, 40 U.S.C. § 3116, but that statutory rate “was not intended to account for long periods of delay in the payment of just compensation” because it “does not reflect the financial impact from the perspective of the property owner.” *Tulare Lake Basin Water Storage Dist. v. United States*, 61 Fed. Cl. 624, 630 (2004).

The CFC should have selected a more reasonable rate in light of recent economic conditions. Plaintiffs proposed the Moody’s rate on Aaa long-term corporate

bonds. Appx17930. The Court of Claims has previously used this rate as a benchmark. *See, e.g., Georgia-Pacific*, 640 F.2d at 366; *Miller v. United States*, 620 F.2d 812, 840 (Ct. Cl. 1980).

V. THE CFC ERRED IN OFFSETTING THE PARISH'S AWARD.

The CFC erred by offsetting the Parish's compensation award by payments the Parish received under the Stafford Act. The CFC was concerned that the Parish would receive a double recovery. Appx20361. But the United States paid the Stafford Act money to *Louisiana*, and Louisiana in turn distributed a portion to the Parish. Appx20359. And Louisiana must ensure that recipients of Stafford Act money repay duplicative assistance, 42 U.S.C. § 5155(c); Appx14737, so there is no risk of a double recovery. Deferring subrogation to collateral proceedings would allow the Court to avoid two difficult questions best left to later proceedings. First, the Parish paid some consideration for the Stafford Act payments (it agreed, for example, to purchase flood insurance, 44 C.F.R. § 206.252(d)), and so the entire payment cannot count as an offset. Second, the payments covered only damage to *improvements* on the properties—it did not compensate the Parish for rental value or the diminution in land value. 42 U.S.C. § 5172(a)(1)(A); Appx14727, Appx20361. Thus, the Stafford Act cannot offset any award for these latter categories of damage.

CONCLUSION

The Court should affirm the CFC's decisions, with those limited exemptions relevant to Plaintiffs' cross-appeal.

Dated: March 24, 2017

Respectfully submitted,

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ADDENDUM

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In the United States Court of Federal Claims

No. 05-1119 L

May 1, 2015

ST. BERNARD PARISH GOVERNMENT
AND OTHER OWNERS OF REAL
PROPERTY IN ST. BERNARD PARISH
OR THE LOWER NINTH WARD OF THE
CITY OF NEW ORLEANS,¹

Plaintiffs,

v.

THE UNITED STATES,

Defendant.

Temporary Takings Claim;
U.S. CONST. amend. V.

Charles J. Cooper, Cooper & Kirk, PLLC, Washington, D.C., Counsel for the Plaintiff.

William James Shapiro, Environmental and Natural Resources Division, United States Department of Justice, Washington, D.C., Counsel for the Government.

MEMORANDUM OPINION AND ORDER ON LIABILITY REGARDING A TEMPORARY TAKING BY FLOODING

BRADEN, *Judge*.

On October 17, 2005, St. Bernard Parish, a governmental entity of the State of Louisiana, and owner of real property, together with private owners of real property, located either in St. Bernard Parish or the Lower Ninth Ward of the City of New Orleans, filed a Complaint in the United States Court of Federal Claims under the Takings Clause of the Fifth Amendment to the United States Constitution, alleging that the United States Army Corps of Engineers (“Army Corps”) constructed, expanded, operated, and failed to maintain a seventy-six-mile-long navigational channel, known as the Mississippi River-Gulf Outlet (“MR-GO”),² that significantly increased storm surge and caused flooding on their properties from August 29, 2005 into early

¹ This case was filed on October 17, 2005, under the caption *Tommaseo v. United States*, No. 05-1119L. On March 19, 2009, this case was re-captioned, with the consent of the parties.

² The acronym “MR-GO” is used herein, and is interchangeable with the term “MRGO.”

September during Hurricane Katrina, as well as “inevitably recurring” flooding thereafter during Hurricane Rita (September 24, 2005); Hurricane Gustav (September 1, 2008); and Hurricane Ike (September 13, 2008). As a result of the likelihood that storm surge would cause flooding in subsequent hurricanes and severe storms, on June 5, 2008, the Army Corps decided to “deauthorize” the MR-GO. Final closure took place by July 2009.

In the aftermath of Hurricane Katrina, over 400 lawsuits were filed in the United States District Court by other plaintiffs, alleging that the Army Corps’ construction and operation of the MR-GO violated the Federal Torts Claims Act, 28 U.S.C. § 2671 *et seq.*, and Louisiana negligence laws. These cases were consolidated before the Honorable Judge Stanwood R. Duval, Jr. (“the District Court”).³ On November 18, 2009, after a nineteen day bench trial, the District Court issued Findings Of Fact And Conclusions Of Law determining that the Army Corps’ negligent failure to maintain and properly operate the MR-GO was a substantial cause of the fatal breaching of the Reach 2 levee and the catastrophic flooding during Hurricane Katrina. *See In re Katrina Canal Breaches Consol. Litig.*, 647 F. Supp. 2d 644, 679–98 (E.D. La. 2009) (“*Robinson*”). In addition, the District Court held that those actions: (1) were not subject to the Flood Control Act immunity; (2) did not satisfy the “due care” exception to the waiver of sovereign immunity; and (3) did not satisfy the discretionary function exception to the Federal Tort Claims Act. *Id.* at 698–734.

On March 2, 2012, the United States Court of Appeals for the Fifth Circuit summarized the District Court’s “impressive rulings” of fact, as follows:

In 1943, Congress requested a report from the Chief of Engineers, Secretary of the Army, investigating ways to make the Port of New Orleans more accessible for maritime and military use. That request led to the authorization of MRGO in 1956. The channel was built to its full dimensions by 1968 and afforded a shorter shipping route between the Gulf of Mexico and New Orleans. As the district court noted, the channel, as originally designed, “was to be 36 feet deep and 500 feet wide, increasing at the Gulf of Mexico to 38 feet deep and 600 feet wide.” *In re Katrina Canal Breaches Consol. Litig.*, 647 F. Supp. 2d 644, 717 (E.D. La. 2009). MRGO was cut through virgin coastal wetlands at a depth that exposed strata of so-called “fat clay,” a form of soil soft enough that it will move if made to bear a load. The channel’s original designers considered and rejected armoring its banks with foreshore protection, leaving them vulnerable to erosion.

During the design and construction of MRGO, the Corps also implemented the Lake Pontchartrain and Vicinity Hurricane Protection Plan (“LPV”). Pursuant to

³ Shortly after this case was filed in the spring of 2006, the undersigned judge initiated a conference with the District Court to avoid duplicative discovery and coordinate the adjudication of both cases, although each case had different plaintiffs and alleged different legal causes of action. Both judges agreed that the federal tort and state negligence claims first should proceed to adjudication and final judgment. Thereafter, this court would convene a bench trial on the Takings Clause claim, but would not issue an opinion until any appellate review of the District Court’s decision was final. The parties in this case were advised of and agreed to this procedural agreement, in the presence of the District Court and the undersigned judge.

that plan, the Corps constructed, *inter alia*, the New Orleans East Unit, levees protecting New Orleans East; the Chalmette Area Unit, levees protecting the Ninth Ward and St. Bernard Parish; and higher floodwalls in the outfall canals at 17th Street, Orleans Avenue, and London Avenue.

Over the years, MRGO's lack of armoring or foreshore protection resulted in substantial erosion of its banks, largely from wave wash from wakes left by channel-going vessels. MRGO eventually reached a total average width of 1970 feet, well over three times its authorized width.

Though the Corps eventually added foreshore protection in the 1980s, that delay allowed the channel to widen considerably, destroying the banks that would have helped to protect the nearby Reach 2 levee (in the Chalmette Area Unit) from front-side wave attack as well as loss of height. The increased channel width added more fetch as well, allowing for a more forceful frontal wave attack on the levee.

MRGO's expansion thus allowed Hurricane Katrina to generate a peak storm surge capable of breaching the Reach 2 Levee and flooding the St. Bernard polder. Separately from MRGO, the hurricane also caused the 17th Street, Orleans Avenue, and London Avenue levees to breach.

In re Katrina Canal Breaches Litig., 673 F.3d 381, 385–86 (5th Cir. 2012).

The United States Court of Appeals for the Fifth Circuit also affirmed the District Court's legal conclusions. *See id.* at 399 ("The district court's careful attention to the law . . . allow us to uphold its expansive ruling in full, excepting our minor restatement of FCA immunity."). But, on September 24, 2012, that federal appellate court decided to consider the Government's petition for rehearing, withdrew its prior opinion, and reversed the District Court's legal ruling that the Army Corps was not immune from claims arising from levee breaches caused by MR-GO under the discretionary function exception to the Federal Tort Claims Act. *See In re Katrina Canal Breaches Litig.*, 696 F.3d 436, 441 (5th Cir. 2012). In doing so, however, the District Court's factual findings were not disturbed. *Id.* at 441–43.

Since the Federal Tort Claims Act and Louisiana negligence claims in the United States District Court's case are now final, the court's disposition of the substantive merits of Plaintiffs' Takings Clause claim alleged in this case is now ripe for adjudication.

To facilitate review of this Memorandum Opinion And Order, the court has provided the following outline:

I. RELEVANT FACTUAL BACKGROUND.

- A. The Geographic Topology And Environmental Conditions In The New Orleans Area Prior To 1914.
- B. Beginning In 1914, Navigational And Flood Protection Projects Were Constructed By The State Of Louisiana And The Army Corps Of Engineers In The New Orleans Area.

1. The Inner Harbor Navigation Canal (1914).
 2. The Gulf Intracoastal Waterway (1925).
 3. Lake Pontchartrain And The Hurricane Protection Project (1955).
- C. During 1958–1968, The Army Corps Of Engineers’ Constructed And Implemented The First Expansion Of The Mississippi River Gulf Outlet.
- D. From 1998–2004, Army Corps Of Engineers’ And Other Governmental Studies Identified That The Construction, Expansions, Operation, And Failure To Maintain The Mississippi River Gulf Outlet Could Significantly Increase Storm Surge And Flooding During Hurricanes Or Severe Storms, But No Remedial Action Was Taken.
- E. Hurricane Katrina.
- F. After Hurricane Katrina, Storm Surge Continued To Cause Intermittent Flooding, And The Army Corps Of Engineers Closed The Mississippi River Gulf Outlet In July 2009.

II. DISCUSSION.

- A. Jurisdiction.
- B. Standing.
- C. Admissibility And Weight Of Witness Testimony.
1. Lay Witness Testimony.
 2. Expert Witness Testimony.
- D. Plaintiffs Established That The Army Corps Of Engineers’ Construction, Expansions, Operation, And Failure To Maintain The Mississippi River Gulf Outlet Effected A Temporary Taking By Increased Storm Surge And Flooding Of Plaintiffs’ Properties During Hurricane Katrina And Subsequent Hurricanes And Severe Storms.
1. Plaintiffs Established That They Held Protectable Property Interests Recognized Under Louisiana Law.
 2. Plaintiffs Established That, Based On The Character Of Their Property Interests, They Had “Reasonable Investment-Backed Expectations.”
 3. Plaintiffs Established That It Was Foreseeable To The Army Corps Of Engineers That The Construction, Expansions, Operation, and Failure To Maintain The Mississippi River Gulf Outlet Would Substantially Increase Storm Surge During Hurricanes And Other Severe Storms And Cause Flooding.
 - a. Because Of Increased Salinity.

- b. Because Of Increased Habitat/Wetland Loss.
 - c. Because Of Increased Erosion.
 - d. Because Of Increased Storm Surge.
 - e. Because Of The “Funnel Effect.”
- 4. Plaintiffs Established A Causal Link Between The Army Corps Of Engineers’ Construction, Expansions, Operation, And Failure To Maintain The Mississippi River Gulf Outlet And Significant Increase In Storm Surge And Flooding During Hurricane Katrina And Subsequent Hurricanes And Severe Storms That Flooded Plaintiffs’ Properties.
 - a. Because Of Increased Salinity.
 - c. Because Of Increased Habitat And Wetland Loss.
 - d. Because Of Increased Erosion.
 - e. Because Of Increased Storm Surge.
 - f. Because Of The “Funnel Effect.”
 - g. The Government’s Arguments Are Not Supported By The Law Or The Record.
 - i. Flooding On Plaintiffs’ Properties Did Not Occur On A Single Occasion, But Instead Was “Inevitably Recurring.”
 - ii. Hurricane Katrina Was Not An Intervening Event That Broke The Chain Of Causation.
 - iii. Neither Subsidence, Sea Level Rise, Nor Land Loss Was The Cause Of Flooding On Plaintiffs’ Properties.
 - iv. Economic Development Was Not The Cause Of Habitat/Wetland Loss.
 - v. Post-Katrina Remedial And Restoration Efforts Do Not Negate The Army Corps’ Liability For A Temporary Taking Of Plaintiffs’ Properties By Flooding.
 - vi. Plaintiffs’ Claims Are Not Barred By The Statute Of Limitations.
- 5. Plaintiff Established That The Injury From Flooding Was Substantial And Severe.

III. CONCLUSION.

I. RELEVANT FACTUAL BACKGROUND.⁴

A. The Geographic Topology And Environmental Conditions In The New Orleans Area Prior To 1914.

In 1718, France founded Nouvelle-Orléans on the St. Bernard Delta. When that land was acquired in 1803 by the United States, as part of the Louisiana Purchase, it was surrounded by natural water sources: Lake Pontchartrain to the north; Lake Borgne to the east, until it merges into the Gulf of Mexico; Breton Sound to the southwest, until it merges into the Gulf of Mexico; the Mississippi River arriving from the west of Lake Pontchartrain and undulating south; Lake Salvador to the south; Lake Allemands to the southwest; and Lake Maurepas to the northwest.

St. Bernard Parish is bordered by the Mississippi River to the south, Lake Borgne to the north, the Lower Ninth Ward to the west, and the Gulf of Mexico to the east. St. Bernard Parish is covered by wetlands and marsh, except for approximately forty-two square miles of developed land. 1/13/11 Taffaro Dep. 24–25. The Lower Ninth Ward is bordered by St. Bernard Parish to the east and the Inner Harbor Navigation Canal (“IHNC”) to the west. 12/12/11 TR 86 (Estopinal). St. Bernard Parish and the Lower Ninth Ward together comprise what is known as the St. Bernard

⁴ The facts herein have been discussed in the following prior opinions: *Tommaseo v. United States*, 75 Fed. Cl. 799, 800–01 (2007) (“*Tommaseo I*”) (denying, as premature, the Government’s October 4, 2006 Motion To Dismiss, because Plaintiffs’ claims were not barred by the statute of limitations); *Tommaseo v. United States*, 80 Fed. Cl. 366, 367–68 (2008) (“*Tommaseo II*”) (granting Plaintiffs’ November 30, 2007 Motion For Leave To File A Second Amended Complaint); *St. Bernard Parish v. United States*, 88 Fed. Cl. 528, 531–42 (2009) (denying, without prejudice: the Government’s November 7, 2008 Motion For Summary Judgment on statute of limitations grounds, because the stabilization doctrine applied, delaying the accrual of Plaintiffs’ claims; and the Government’s Motion To Dismiss, pursuant to RCFC 12(b)(6), for failure to state a claim upon which relief can be granted, because Plaintiffs’ January 31, 2008 Second Amended Complaint and the record established the plausibility of Plaintiffs’ claims) (“*St. Bernard Parish I*”); and *St. Bernard Parish v. United States*, 99 Fed. Cl. 765, 766–67 (2011) (denying the Government’s May 23, 2011 Motion To Stay) (“*St. Bernard Parish II*”).

Additional facts have been derived from: the exhibits to the parties’ pleadings; testimony adduced at a liability trial in this case conducted in New Orleans, Louisiana on December 12–15, 2011 (Court Exhibit A); and the exhibits admitted into evidence by the court’s May 1, 2015 Memorandum Opinion And Order On Evidentiary Issues.

On May 1, 2015, the court issued a Memorandum Opinion And Final Order On Evidentiary Issues. As explained therein, the court has taken judicial notice of testimony and documents admitted in evidence in *In re Katrina Canal Breaches Litig.*, 647 F. Supp. 2d at 649–79. *See* FED. R. EVID. 201(b)(2) (describing the kinds of adjudicative facts subject to judicial notice). For ease of reference, the court has labeled all exhibits from *Robinson* with “R,” *i.e.*, “RPX” for plaintiffs’ exhibits, “RDX” for the Government’s exhibits, and “RJX” for joint exhibits. Plaintiffs’ exhibits from this case are labeled “SPX,” and the Government’s exhibits are labeled “DX.”

Polder.⁵ Most of the area adjacent to the St. Bernard Polder was a swamp comprised of flooded forests and marshes or freshwater marshes in inland flat open water areas with few trees, vegetated by sedges, reed, and grasses. *See Hurricane on the Bayou, Educator's Guide*, AUDUBON NATURE INST. 2 ("AUDUBON EDUCATOR'S GUIDE"), available at <http://www.hurricaneonthebayou.com>; SPX.0472 at 10–11 (same). This area also had numerous saltwater marshes behind barrier islands or river estuaries, vegetated by grasses. Historically, these wetlands were relatively stable and protected the New Orleans area from catastrophic storms. 12/6/11 Kemp⁶ Direct at 109.

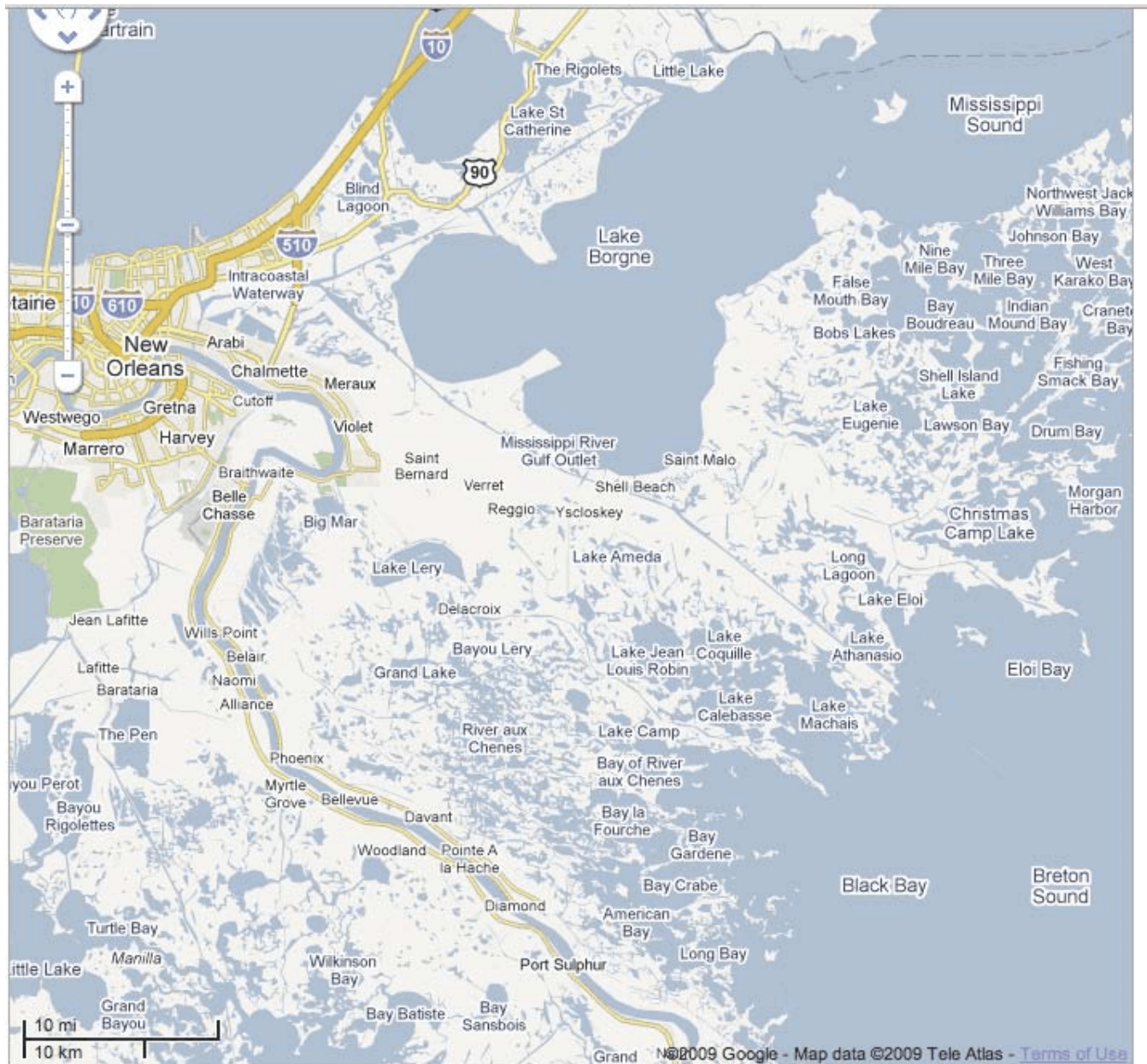
To better depict the geography of the area, the following map shows St. Bernard Parish in 1998:



⁵ A polder is “a piece of low-lying land reclaimed from the sea, a river, etc. and protected by d[i]kes.” OXFORD ENGLISH DICTIONARY ONLINE. Oxford Univ. Press, March 2015 (last visited April 30, 2015).

⁶ Dr. George Paul Kemp a geologist and oceanographer, and is Vice President of the National Audubon Society and Director of the Louisiana Gulf Coast Initiative. He obtained his B.S. in Natural Resources from Cornell University, and his M.S. and Ph.D in Marines Sciences from Louisiana State University.

The following map shows New Orleans and the St. Bernard Polder area in 2009:



B. Beginning In 1914, Navigational And Flood Protection Projects Were Constructed By The State Of Louisiana And The Army Corps Of Engineers In The New Orleans Area.

1. The Inner Harbor Navigation Canal (1914).

In 1914, the State of Louisiana authorized the Port of New Orleans to build a 5.5-mile long shipping waterway, known as the IHNC, to connect the Mississippi River to Lake Pontchartrain. SPX.0001 at I-31 fig. 6. The IHNC also hydrologically links Lake Pontchartrain to Lake Borgne. SPX.0210 at 1-4 (U.S. ARMY CORPS OF ENG'RS, MRGO ECOSYSTEM RESTORATION PLAN DRAFT

FEASIBILITY REPORT (2010)) (“2010 FEASIBILITY REPORT”). Docks were constructed along the IHNC after it was completed, so that it could be used as a harbor and an industrial zone.

2. The Gulf Intracoastal Waterway (1925).

In 1925, Congress authorized the construction of the Louisiana and Texas Intracoastal Waterway, known as the Gulf Intracoastal Waterway (“GIWW”) that extends from Brownsville, Texas east to Carrabelle, Florida. Initially, the purpose of the GIWW was to facilitate tugboat and barge transport of petroleum, food, building materials, and manufactured goods, but it later served as a strategic transportation route during World War II. Today, the GIWW is used for commercial transport, as well as for recreational boating.

3. Lake Pontchartrain And The Hurricane Protection Project (1955).

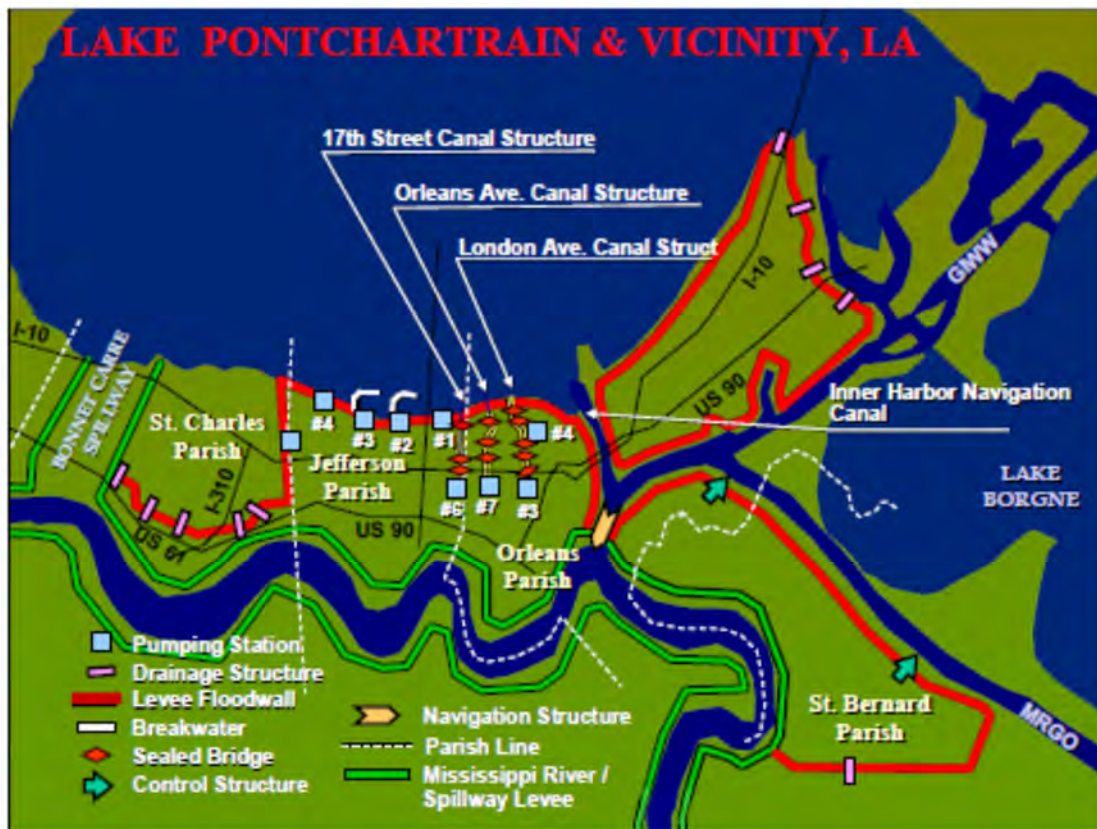
On June 15, 1955, Congress authorized the Army Corps to study the need for additional hurricane protection along the southern United States coast, including New Orleans and Lake Pontchartrain. *See* Pub. L. No. 84-71, 69 Stat. 132, 132 (1955); *see also* SPX.0169 at 2–3. The result was a comprehensive report, known as the “Barrier Plan,” that recommended construction of floodgates to act as “surge barriers,” levees, and floodwalls along the IHNC and GIWW to protect New Orleans from “Standard Project Hurricane”⁷ wave action and surges, according to Army Corps and U.S. Weather Bureau projected parameters. SPX.0169 at ES-6.

On October 27, 1965, Congress authorized funding to implement the “Barrier Plan.” *See* Flood Control Act of 1965, Pub. L. No. 89-298, 79 Stat. 1073, 1077 (1965); *see also* SPX.0169 at ES-6. The Barrier Plan was implemented as the Lake Pontchartrain and Vicinity Hurricane Project, known as the LPV, which was to be comprised of 125 miles of levees and floodwalls. SPX.0001 at I-28.

The Mississippi River Flood Protection System runs along the Mississippi River and was designed to control “river-flood flows and forms the [St. Bernard] basin’s Western border.” 11/12/13 FitzGerald Direct at 4. The LPV was designed for “hurricane-flood waters” and borders the remainder of the basin area. 11/12/13 FitzGerald Direct at 4. The 40 Arpent levee and eight pump stations provided local protection between the Central Wetlands and New Orleans. 11/12/13 FitzGerald Direct at 4.

⁷ The Army Corps defined a “Standard Project Hurricane” as “one having a frequency of once in about every 200 years[.]” SPX.0219 at 24. After Hurricane Betsy, five storms exceeded the “Standard Projection Hurricane,” including: Camille, Carmen, Andrew, Katrina, and Rita.

The following map shows the geography of the St. Bernard Polder and relevant flood protection systems prior to Hurricane Katrina:



SPX.0001 at I-31.

As of May 2005, however, only 90% of the LPV was completed in Orleans Parish, 70% in Jefferson Parish, 90% in Chalmette, and 60% in St. Charles Parish. SPX.0001 at I-28. In June 2009, an Army Corps report stated, “At no time has the entire New Orleans and Vicinity area had a reasonably uniform level of protection around its perimeter. At no time has any individual parish or basin had the full authorized protection planned for in 1965.” SPX.0001 at I-28.

C. During 1958–1968, The Army Corps Of Engineers’ Constructed And Implemented The First Expansion Of The Mississippi River Gulf Outlet.

The environmental conditions in southeastern Louisiana prior to 1956 were summarized in the 2007 Day-Schaffer⁸ Report as follows:

[T]here were extensive bald cypress-water tupelo swamps in the [Central Wetlands Unit] and adjacent to the Bayou La Loutre Ridge. The semi-enclosed and protected

⁸ Professor John W. Day, Jr., Department of Oceanography and Coastal Sciences, Louisiana State University at Baton Rouge, Louisiana, and Professor Gary P. Shaffer, Department of Biological Sciences, Southern Louisiana University, issued an Expert Report admitted in

nature of this area—and the exclusion of deadly salt water—allowed the survival of these swamps. . . . Water budget analyses for southeastern Louisiana show that about one third of rainfall remains after evaporation. Thus there was sufficient fresh water to maintain the bald cypress-water tupelo swamps in the [Central Wetlands Unit], so long as the system did not have a direct input of salt water.

SPX.0472 at 4 (internal citations omitted); *see also* 12/6/11 Kemp Direct at 109. Cypress trees, in particular, were critical to preventing storm surge and allowing “typical tidal flow within the Breton Sound area [to be] reduced as it moved across the marshes and wetlands towards Lake Borgne.” Gov’t 11/7/08 S.J. Ex. A at xiii (“2008 ARMY CORPS REPORT”) (internal citations omitted); *see also* 12/12/11 TR 292–93, 481–82 (Kemp).

On March 29, 1956, Congress authorized the Army Corps to construct the MR-GO “substantially in accordance with” a May 5, 1948 Army Corps Report that recommended the construction of a deep-draft channel on the west side of the Mississippi River from the IHNC east towards the GIWW to Michoud. *See* Pub. L. No. 84-455, 70 Stat. 65 (1956). This area became known as Reach 1. Public Law 84-455 also authorized the Army Corps to construct: “(1) protective jetties at the entrance to the MR-GO from the Gulf of Mexico; (2) a permanent retention dike through the Chandeleur Sound and a wing dike along the islands[,] as required; (3) a turning basin with a project depth of 36 feet Mean Low Gulf (MLG), a width of 1,000 feet and a depth of 2,000 feet at the junction of the new channel and Inner Harbor Navigational Canal; and (4) a highway bridge . . . to carry Louisiana State Highway 61 over the [MR-GO].” 2008 ARMY CORPS REPORT at v.

On September 3, 1957, the St. Bernard Tidal Channel Advisory Committee convened a meeting with the Army Corps to warn that the MR-GO “will have adverse effects on the entire marsh area with consequent erosive action and the intrusion of high saline content water into areas normally fresh or only slightly [brackish].” RDX-1145 at 2. The Committee also predicted that the MR-GO channel would “be an enormous danger to the heavily populated areas of the parish due to the rapidity of the rising waters [during a hurricane] reaching the protected areas in full force through the avenue of this proposed canal.” RDX-1145 at 3; *see also* 12/6/11 Kemp Direct at 48.

Nevertheless, on September 11, 1957, the Army Corps proceeded to construct the first section of the MR-GO. RDX-1042 at EDP-023-667 (Design Memorandum No. 2). The MR-GO was to provide a sixty-mile, “shorter navigation route from the Gulf of Mexico to the Port of New Orleans tidewater facilities,” than using the Mississippi River to “access the port.” 2008 ARMY CORPS REPORT at iv. The Army Corps “chose the MRGO channel alignment partly to reduce future costs of maintaining the authorized channel by routing it as much as possible within the marsh, and partly to allow for development of potential industrial sites on the relatively high land created in the spoil disposal area along its south bank.” 12/6/11 Kemp Direct at 54.

Robinson (RJX-0199) and in this case (SPX.0472) that discussed, in depth, the environmental conditions in New Orleans before and after construction, expansions, operation, and failure to maintain the MR-GO by the Army Corps.

On September 23, 1957, the Secretary of Interior wrote a letter to the Secretary of the Army to express “great concern” about the proposed construction of the MR-GO:

Dredging and deposition of spoil involved in the construction of this project may be highly destructive to important producing areas for shrimp and other shellfish, nursery areas for finfishes, and highly valuable water-fowl marshes.

The project plans have not been investigated by fish and wildlife conservation agencies as contemplated in the Wildlife Coordination Act of August 14, 1946 (60 Stat. 1050). The U.S. Fish and Wildlife Service of this Department is now initiating such investigations[.]

* * *

We urge that detailed planning for the project consider fully the effects of fish and wildlife resources of constructing the canal and that your department accept reasonable modifications in alignment of the canal and in the plan for deposition of spoil to hold to a minimum the destructive effects on those resources, even though this may increase project costs to some degree.

It will be apparent that the fish and wildlife investigations are far behind the stage reached in the engineering investigations. We trust, therefore, that the [Army] Corps of Engineers will take the necessary steps to bring the investigations of all phases of this project into balance.

RPX.0161 at 1–2.

In 1958, the United States Fish & Wildlife Service (the “F&W Service”) also warned the Army Corps that “[t]he excavation of a channel 36 feet deep, 500 feet wide, and over 70 miles long from New Orleans to the Gulf of Mexico through the Lake Borgne marshes and shallow inlets of Chandeleur Sound, in effect, could result in a major ecological change of the area.” RDX-1685 at 24 (U.S. DEP’T OF FISH & WILDLIFE, AN INTERIM REPORT ON FISH & WILDLIFE RES. AS RELATED TO MISS. RIVER-GULF OUTLET (1958)); *see also* RJX-0199 (Day/Shaffer Report at 5 (stating that the F&W Service predicted that the MR-GO construction “particularly by breaching the natural east-west ridges between fresh/brackish and salt water” would “introduce salt water into the wetlands and destroy tens of thousands of acres of marshes and mature bald cypress-water tupelo swamps.”)); 12/6/11 Kemp Direct at 48 n.2 (summarizing the 1958 Service Report as “predict[ing] the very environmental disaster that the MRGO would inflict on the region of the Central Wetlands Unit.”). The F&W Service also advised the Army Corps that these environmental changes could “have widespread and severe consequences.” RDX-1685 at 25. In addition, the F&W Service warned the Army Corps that “[c]hanges in the water circulation pattern and sedimentation pattern” could “subject important fish and wildlife areas to changes in salinities, with perhaps damaging changes in salinity zones.” RDX-1685 at 25. And, the F&W Service also predicted increased temporary and permanent turbidity that could damage the local environment. RDX-1685 at 25. In light of these adverse environmental consequences, the F&W Service recommended that the Army Corps delay construction of MR-GO pending further study. RDX-1685 at 26; *see also* 12/13/11 TR 500 (Kemp). The Army Corps did not respond to concerns exposed by the Secretary

of Interior or the F&W Service and began construction of the MR-GO. RDX-1042 at EDP-23-667.

On January 27, 1959, the second section of the MR-GO was approved. RDX-1042 at EDP-023-667 (Design Memorandum No. 2). This section, known as “Reach 2,” extended southeast-northwest from just east of the Paris Road Bridge down through Breton Sound for approximately twenty-four miles into the Gulf of Mexico and was supposed to function as a “hurricane protection levee [on top of a] dredged material placement bank on the southwest side of the channel and Lake Borgne and open marsh . . . to the northeast.” Gov’t 11/7/08 S.J. Ex. E at 1–2 (“2006 WESTERINK NOTE”).⁹

In 1959, the Army Corps also considered a revision to the initial MR-GO design to take into account the likelihood of salinity intrusion, but rationalized its decision not to do so as follows: “[i]f the [MRGO] channel is separated by spoil from the surrounding area—except for a few openings—the salinities in the area inland from Shell Beach to the west of the channel will tend to be fresher, and Lake Borgne should remain essentially unchanged.” RPX0699 at PDF 3. A 1959–1961 Army Corps hydrologic study stated that salinity increased at five stations the year after the MR-GO was opened, although the “Bayou La Loutre ridge provided a basin boundary that limited the flow of saline water from the Breton Sound area into Lake Borgne and nearby wetlands.”¹⁰ 2010 FEASIBILITY REPORT at 2-10. But, the Army Corps ignored the fact that, over time the design of the MRGO would result in:

the dissection of the Bayou La Loutre natural levees . . . accelerating the process of saltwater intrusion and contributing to land loss. Therefore, to the extent the MRGO caused an increase in salinity into the study area and the [Central Wetlands Unit] it was the direct result of the design of the channel and the altered hydrology resulting from the dissection of these natural levees.

RJX-0202 at 17.

By May 1959, the Army Corps anticipated that the unarmored banks of the MR-GO would experience “erosion due to wave wash in open areas . . . in the upper part of the channel slope,” but recommended “[n]o channel protection” initially, because “[p]rotection . . . can be provided if and when the need for it becomes necessary.” RPX0699 at PDF 14. Since the Army Corps did not have the budget for bank armoring, it relied on dredging “to sustain the critical function of providing serviceable dimensions for shipping.” RPX0716 at 5–6. It was aware, however, that a hurricane swell could travel up the MR-GO from the Gulf of Mexico and “some effect could be felt in New Orleans,” but estimated that a maximum thirty-five foot wave at the Gulf entrance

⁹ This report was authored by: Joannes Westerink, Dep’t of Civil Eng’g & Geological Sci., Univ. of Notre Dame; Bruce Ebersole, Coastal & Hydraulics Lab., U.S. Army Eng’g Research & Dev. Ctr.; Harley Winer, New Orleans Dist., U.S. Army Corps of Eng’rs.

¹⁰ On an unspecified date during the early stages of construction, the Army Corps constructed a scale physical model of the MR-GO that predicted the precise movement of salinity through the channel, but continued with construction. 12/13/11 TR 500 (Kemp).

would lose 97% of its height traveling up the channel. RPX0699 at PDF 12–14 (U.S. ARMY CORPS OF ENG'RS, MISS. RIVER-GULF OUTLET, LA., DESIGN MEMORANDUM NO. 1-B).

By 1961, the Army Corps also was aware that larger storm surge could occur on the Gulf Coast, because of the shallow, broad shelf off that coast, and that “[s]torm surges may also be increased by a funneling effect in the converging estuaries.” RPX1332 at 1-9 (ARMY CORPS COASTAL ENG'G CTR., SHORE PROT. MANUAL, Vol. I (1961)).

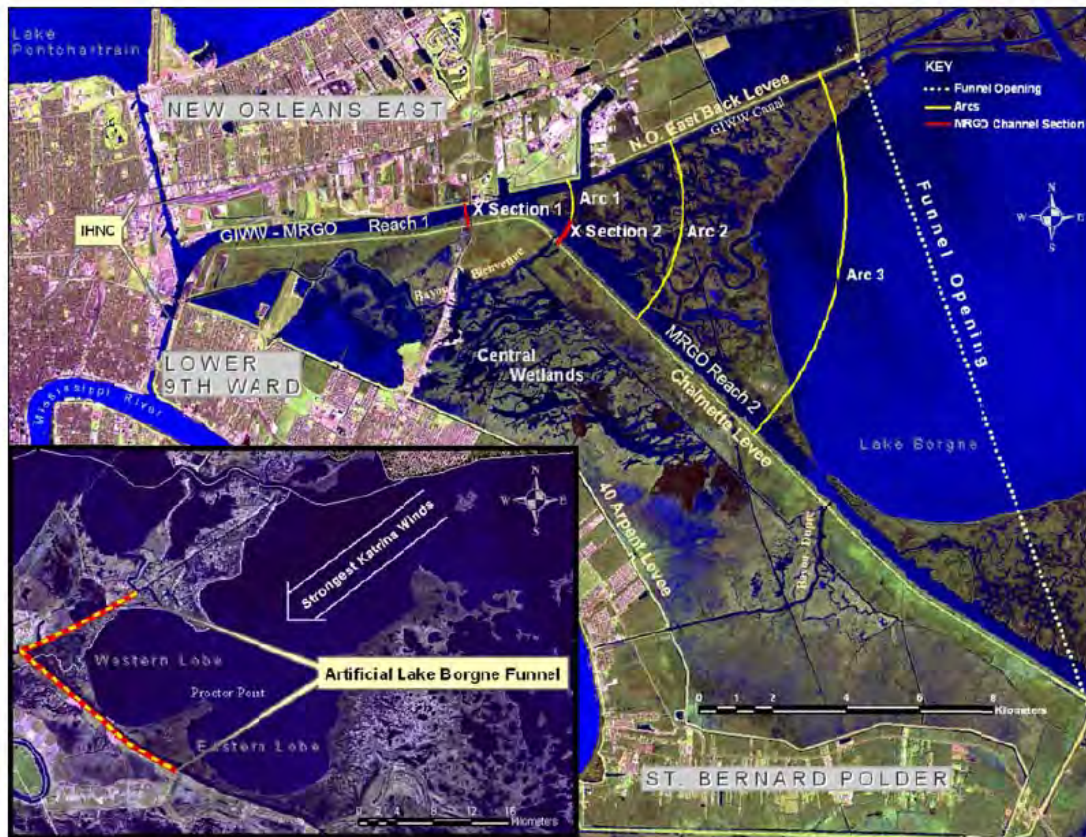


Figure 1.1. Regional map of the Lake Borgne Funnel showing relevant channels, levees, polders (developed areas under pumped drainage), and wetland areas. Some Tommaseo plaintiffs have properties to the east of those shown in the detail map in the Shell Beach area.

12/6/11 Kept Direct at 3 (fig. 1).

In response, the Army Corps developed a plan to build a levee to block the funnel opening. RPX1030 (“Alternate Plan C”); *see also* RDX-1297 at 123 (U.S. ARMY COASTAL ENG'G RESEARCH CTR., SHORE PROT., PLANNING & DESIGN (3d ed. 1966) (“1966 ARMY PLAN”) (“Storm surge may also be increased, particularly in coastal areas, by a funneling effect in converging open bay mouths.”); 12/6/11 Kemp Direct at 32 (“The GIWW and the MRGO Reach 2 form a triangle [at Marker 60] that opens east to Lake Borgne This layout has been described as a ‘funnel’ by virtually everyone who has taken a bird’s-eye look at the plan developed by the [Army

Corps].”). But, the Army Corps took no action, and the initial construction of the MR-GO was completed in 1963. Pls. 2/9/09 S.J. Ex. 7 at 2-1 (“2000 EPA REPORT”).

On September 9–10, 1965, Hurricane Betsy arrived just south of New Orleans as a category 5 storm, damaging six thousand homes near the Port of New Orleans and flooding the Lower Ninth Ward with twelve feet of water. SPX.0169 at 2-5; *see also* 12/12/11 TR 107, 109 (Estopinal); David Roth, *Louisiana Hurricane History*, NAT’L WEATHER SERV., *available at* <http://www.hpc.ncep.noaa.gov/research/lahur.pdf> at 41 (“NAT’L WEATHER SERV.”) (describing a ten-foot storm surge from Hurricane Betsy).

On November 24, 1965, the Citizens Committee for Hurricane Flood Control wrote a letter to the Army Corps requesting action to avoid the type of flooding experienced with Hurricane Betsy and recommending that the Army Corps build flood gates on the Intercoastal Waterway, Bayou Bienvenue, Gulf Outlet, instead of a proposed levee that “would form a funnel, channeling all hurricane surges and wind driven water in the Intercoastal Waterway and Industrial Canal[.]” RPX0006 at 3.

In 1966, the Army Corps retained Charles Bretschneider and J. Ian Collins of the National Engineering Science Company (“NESCO”), who published a September 1966 Report (“NESCO Report”). SPX.0105. The NESCO Report used computer modeling to evaluate the impact of storm surge on existing and proposed levees, with and without the MR-GO. But, the levee running parallel to the MR-GO was not constructed when Bretschneider and Collins conducted their research; instead, excavation material was piled six to eight feet high on the south side of the channel. 12/6/11 Kemp Direct at 69. Although the NESCO Report predicted that the MR-GO and the proposed levee configuration would increase conveyance of storm surge into the IHNC, it concluded that “the effect of the Mississippi River-Gulf Outlet is almost negligible for all large hurricanes accompanied by slow rising storm surges.” SPX.0105 at 4. But, it observed that, in the case of “more rapidly rising surge,” there “may [be] a very marked effect.” SPX.0105 at 4; *see also* 2006 WESTERINK NOTE at 3 (describing the NESCO Report); *see also* RJX-0278 at 1 (Nov. 21, 1962 ARMY CORPS INTERIOR SURVEY REPORT, LAKE PONTCHARTRAIN, LA. & VICINITY) (stating that “[h]urricane damages result from surges entering Lake Pontchartrain from Lake Borgne through natural tidal passes at the Rigolets and Chef Menteur Pass and through improved channels of the [MR-GO] Outlet and [IHNC]”); *see also id.* (“The [MR-GO] provides a deep, direct route for the inflow of saline currents from the Gulf of Mexico to the area along its channel and to Lake Pontchartrain, with resultant adverse effect on fishery resources in the area. The [MR-GO] will also produce high velocity currents in the [IHNC].”).

In October 1973, a report prepared by Dr. S.A. Hsu¹¹ for St. Bernard Parish criticized the NESCO Report, because none of the storm tracks selected were within “a dead hit radius of the MRGO. . . . What would happen if the radius of high flooding hit the end of the MRGO?” SPX 0707 at A-12. The modeling for the NESCO Report also was criticized, because it was based on data that preceded the expansions of the MR-GO. 12/6/11 Kemp Direct at 75. Dr. Kemp also criticized the NESCO Report on other grounds. 12/6/11 Kemp Direct at 75 (citing SPX.0707 at

¹¹ Dr. Hsu was Assistant Professor at Louisiana State University, specializing in oceanographic meteorology.

A-12 (“[A]ny numerical model should be verified at least by statistically significant samples such as the one developed by Jelesnianski (1967)[.]”). The 1966 NESCO Report downplayed the role of the funnel, because the authors believed that the funnel was made up of mostly wetlands. According to Dr. Kemp, “this is a naïve view of the funnel, even if it was truer in 1967 than it was . . . in 2005, after the wetlands at issue were decimated. . . . As the funnel converges to the west toward its apex, the relative contribution of the channels to cross-sectional area . . . rise[s].” 12/6/11 Kemp Direct at 136–37; *see also* 12/16/11 Kemp Direct at 71 (“[Bretscheider and Collins’s] model predicted a dramatic increase in storm surge” as water moved into the funnel created by the MR-GO and the GIWW, but estimated that area wetlands would reduce the surge three times more effectively than the channel.).

In 1966, the Army’s Coastal Engineering Research Center also conducted a study observing that storm surge depends on:

the wind velocity, the distance over which it blows, the wind direction, and the water depth. Storm surge is greater in lesser depths, and this is the reason for the generally greater values of storm surge along the Gulf Coast[.] Storm surge may . . . be increased, particularly in coastal areas, by a funneling effect in converging open bay mouths.

1966 ARMY PLAN at 123.

In 1968, Congress authorized an expansion of the MR-GO. *See* The River and Harbor Act of 1968 Pub. Law No. 90-483, 82 Stat. 731 (1968). By the time the third segment of the MR-GO was completed in 1968, the Army Corps had dug through 2,116 acres of salt marsh and swamp and thirty-six acres of trees. RJX-0195 at 2-4 (9/11/08 Expert Report of Dr. Duncan FitzGerald¹²). The dredge spoil placed along the south bank of MR-GO buried more than 10,000 additional acres of marsh, swamp, and trees. RJX-0195 at 2-4. “Ship wave erosion,” subsequently, increased the surface width of the channel, at a rate of up to 15 ft per year from 1968 to 2006. 2006 WESTERINK NOTE at 2.

The MR-GO has been described as extending:

southeast to northwest from the Gulf of Mexico to a point where it first merges with the [GIWW], and then continues westward until it intersects the [IHNC]. . . . The first 9 miles, the bar channel, are in the open Gulf. The next 23 miles of the channel lie in the shallow open waters of Breton Sound. From there, the inland cut extends 14 miles to the northwest with open marsh on the northeast and a 4,000-ft wide dredged material placement bank on the southwest side. At this point[,] the channel cuts across the ridge of a relict distributary of the Mississippi River, Bayou La Loutre. For nearly the next 24 miles, there is a hurricane protection levee atop a dredged material placement bank on the southwest side of the channel[,] and Lake

¹² Mr. FitzGerald is Chief Engineer of the Harris County Flood Control District in Houston, Texas. He obtained his B.S. in Civil Engineering from Stanford University. He obtained his M.S. in Civil Engineering from the University of Illinois at Champaign-Urbana.

Borgne and open marsh lie to the northeast. A portion of the levee protecting St. Bernard Parish/Chalmette and the portion of the hurricane protection levee along the south side of Orleans East Parish, north of the GIWW, form the “funnel” that is often referenced. The point where the MRGO and GIWW channels merge is just to the east of the Paris Road Bridge. . . . From this point, the merged GIWW/MRGO channel continues west for about 6 miles to the point where it intersects the IHNC; this portion has hurricane protection levees on both banks. The IHNC extends from Lake Pontchartrain, to the north, to the Mississippi River to the south. The IHNC has levees or floodwalls along both banks. The IHNC Lock, which connects the IHNC to the Mississippi River, is located at the southern limit of the IHNC.

* * *

It is important to distinguish between two sections of the MRGO and the role each plays in tide and storm surge propagation. One is the east-west oriented section that runs between the IHNC and the confluence of the GIWW/MRGO near the Paris Road Bridge, labeled as the GIWW/MRGO . . . , and hereafter referred to as Reach I. The other is the much longer southeast-northwest section . . . referred to as the Reach 2.

The critical section of the MRGO is Reach I, the combined GIWW/MRGO. It is through this section of channel that Lake Pontchartrain and Lake Borgne are hydraulically connected to one another via the IHNC. Reach I existed as the GIWW prior to the construction of the MRGO, although the maintained depth was lower. Because of this connectivity, the local storm surge and astronomical tide in the IHNC and in the section designated GIWW/MRGO is influenced by the tide and storm surge in both Lake Pontchartrain and Lake Borgne. The two Lakes are also connected to each other via the Rigolets and Chef Menteur Pass; the IHNC is the smallest of the three connections. The Reach 1 GIWW/MRGO section of channel is very important in determining the magnitude of storm surge that reaches the IHNC from Lake Borgne and Breton Sound. If the hydraulic connectivity between Lake Pontchartrain and Lake Borgne is eliminated at a point within this section of channel, tide or surge to the west of this point will become primarily influenced by conditions at the IHNC entrance to Lake Pontchartrain; and tide or storm surge to the east of this point will become primarily influenced by conditions in Lake Borgne.

Much concern seems to be focused on MRGO/Reach 2 that runs from the GIWW/MRGO confluence, just east of the Paris Road Bridge, to the southeast. Past work . . . has shown that this section of the MRGO channel, along with the critical section, the GIWW/MRGO/Reach 1, plays an important role in the propagation of the astronomical tide wave and in the flux of more saline water from Lake Borgne/Breton Sound into Lake Pontchartrain via the IHNC. The significant role of the MRGO in the propagation of the low-amplitude tide has been established.

2006 WESTERINK NOTE at 2.

The following map shows the location of the INHC; Reach 1 and Reach 2 of the MR-GO; the federal levee system; and the 40 Arpent Levee.

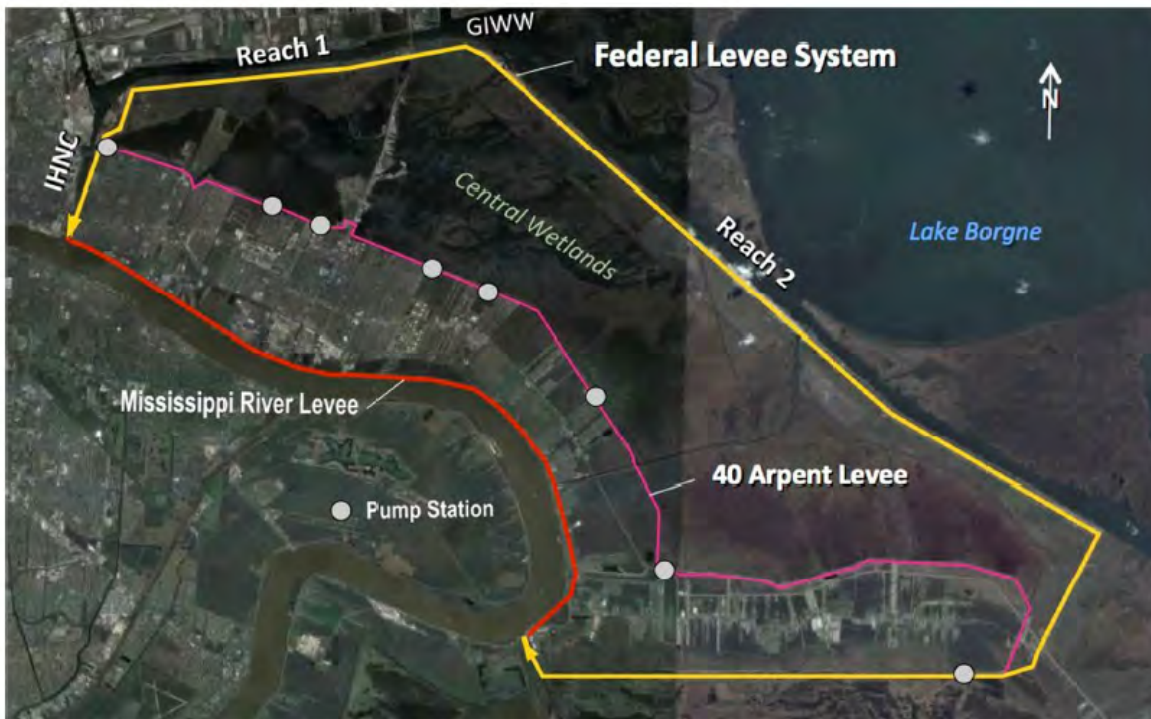


Figure 1. St. Bernard Basin and Features (*aerial Google Earth*)

11/12/13 FitzGerald Direct at 4 fig. 1.

On August 17–18, 1969, Hurricane Camille arrived in Louisiana, as a Category 5 storm, the “most intense hurricane [measured by barometric pressure] known to ever make landfall in the United States.” NAT’L WEATHER SERV. at 42. St. Bernard Parish experienced wind gusts reaching 160 miles per hour. NAT’L WEATHER SERV. at 42. Although Hurricane Camille flooded New Orleans, the St. Bernard Polder did not flood. 12/13/11 TR 487 (Kemp); 12/6/11 Kemp Direct at 136 fig. 6.8 (showing New Orleans flooding from Hurricane Camille).

D. From 1998–2004, Army Corps Of Engineers’ And Other Governmental Studies Identified That The Construction, Expansions, Operation, And Failure To Maintain The Mississippi River Gulf Outlet Could Significantly Increase Storm Surge And Flooding During Hurricanes Or Severe Storms, But No Remedial Action Was Taken.

In 1990, in response to the increased public awareness about the adverse environmental impact of the MR-GO, Congress enacted the Coastal Wetlands Planning, Protection, and Restoration Act of 1990, Pub. L. No. 101-646, 104 Stat. 4761, Title III (1990), known as the “Breau Act.” A central feature of this Act called for a comprehensive Louisiana Coastal Wetlands Restoration Plan. Recognizing the need for a single plan, the Louisiana Coastal Wetlands Conservation and Restoration Task Force and the Wetlands Conservation and Restoration

Authority brought together private, public, and institutional entities to issue a comprehensive report. In 1998, that group issued *Coast 2050: Toward A Sustainable Coastal Louisiana*. Gov’t 11/7/08 S.J. Ex. G (“COAST 2050 REPORT”). The Coast 2050 Report estimated that by the 1990s, the rate of coastal land loss would be between twenty-five and thirty-five square miles per year. COAST 2050 REPORT at 1. The Report concluded that the construction of the MR-GO in the early 1960s “caused loss of marsh from both its ‘footprint’ (area of impact) and the saline water it allowed to enter the basin once the La Loutre Ridge was breached. These events led to high loss in the areas surrounding the MRGO and in areas more removed such as the Pontchartrain/Maurepas Land Bridge.” COAST 2050 REPORT at 47. New Orleans and Yscolsky (St. Bernard Parish) were characterized as “[c]ommunities at risk.” COAST 2050 REPORT at 63–65. More importantly, the 1998 2050 Report made this observation:

The current hurricane protection system, to be completed in 2002, protects the city from a storm surge associated with a fast moving Category 3 hurricane. *But what if the storm is more intense . . . or the storm moves slowly, allowing more time for the storm surge to build? Storm surge models show that a hurricane could produce an 18-foot storm surge in Lake Pontchartrain, which could be topped with 10 foot waves. None of the current or planned protection measures would be effective under those circumstances. . . .* Unfortunately, storm surge heights will only increase as subsidence and sea-level rise continue and more wetlands are lost.

COAST 2050 REPORT at 64 (emphasis added).

In response, on December 15, 1998, the Parish Council of the St. Bernard Parish Government unanimously moved to adopt the following resolution:

WHEREAS, the construction of the Mississippi River Gulf Outlet, which opened in 1963, destroyed a 4750 foot wide, 37 mile long strip of wetlands and swamps. Ship traffic has aggravated erosion of the banks and caused the channel to widen up to 2000 feet from suction that pulls on sediments in the outlet’s banks. The ship’s wake creates waves that batter the banks, causing them to fall apart; and

WHEREAS, *the MRGO provides a superhighway for storm surges caused by hurricanes and winter cold fronts.* No longer blocked by natural levees formed by winding bayous, water from the Gulf of Mexico moves unimpeded and more quickly inland, and can *cause severe flooding in St. Bernard, Orleans and Plaquemines Parishes;* and

WHEREAS, salt water intrusion has virtually destroyed intermediate water marshes and freshwater swamps surrounding [L]ake Borgne, resulting from opening the MRGO; and

WHEREAS, the hydrology, animal and plant life of the Lake Pontchartrain and Breton Sound Basins have been dramatically altered, “dead zones” created, yields and species of seafood decreased and open water areas have appeared where intermediate once flourished; and

WHEREAS, the 1998 hurricane season destroyed over 50 percent of the Chandeleur Islands, a land mass that forms a natural storm barrier for southeastern Louisiana; and

WHEREAS, *the land loss from the MRGO, combined with the hurricane damage* now makes residents from Plaquemines, Orleans, and St. Bernard Parishes *more vulnerable to tropical storms than at any time in history*; and

* * *

WHEREAS, in September, 1998 Hurricane Georges swept mountains of silt into the MRGO sealing the waterway to larger ships, thereby necessitating the U.S. Army Corps of Engineers to dredge the channel at a cost of \$35 million dollars, in addition to average annual dredging costs of \$7–\$10 million dollars and \$3 million for rock retention annually, equating to \$72 thousand dollars per ship or \$143,000 dollars daily for two ships, such annual expenses obviously are not cost-effective; and

WHEREAS, the U.S. Army Corps of Engineers has proposed to spend \$35 million dollars to rock the channel’s north face in addition to dredging a channel that 2 ships (1.8) per day use . . . ; and

WHEREAS, the continuing deterioration of the ship channel and wetland loss has caused flooding in the lower portion of St. Bernard Parish to increase drastically and scientists have measured the tidal surges that flow with speeds of over 18 ft/second! Flooding is expected to increase; and

WHEREAS, the economic benefits derived from the MRGO are now far outweighed by the increasing risk to lives and property; and

WHEREAS, the State of Louisiana’s official coastal restoration plan, Coast 2050, calls for phasing out of the MRGO; and

WHEREAS, St. Bernard Parish never evolved into the “Industrial Frontier of the Great Gulf South” as symbolized by the MRGO nor has the MRGO had any military strategic use as first legislated by Congressman F. Edward Herbert in the appropriation funding the channel.

THE ST. BERNARD PARISH COUNCIL DOES HEREBY RESOLVE

SECTION I. That this Council does hereby request Louisiana’s Southeast Congressional Delegation establish a task force to develop a process that will result in the timely closure of the Mississippi River Gulf Outlet.

SECTION II. That the task force, consisting of a policy committee and a technical advisory committee (Addendum A) will, within the next twelve months,

design and develop a cost effective program to phase out the MRGO that will focus on: public safety, maintaining the Port's economic viability, mitigation and habitat preservation, protection and, where possible, restoration.

Gov't 11/7/08 S.J. Ex. L at 2–3 (Resolution SBPC# 1336-12-98, Resolution to Close the Mississippi River Gulf Outlet) (emphasis added).

On May 25, 1999, the United States Environmental Protection Agency (“EPA”) established a Task Force “to develop alternative futures for the MRGO, for identifying the various issues which must be resolved if the channel is to be closed to deep draft navigation, and to facilitate the resolution of stakeholder issues, including related issues of navigational facilities, environmental restoration, and hurricane protection.” 2000 EPA REPORT at 2-5.

In 1999, the Army Corps estimated that “MRGO channel construction . . . resulted in the conversion of 19,400 acres of wetlands and 4,750 acres of shallow open water to deep open water or dredge material banks.” SPX.1154 at 1-13 (12/9/10 U.S. ARMY CORPS OF ENG'RS, MRGO ECOSYSTEM RESTORATION STUDY DRAFT ENVTL. IMPACT STATEMENT) (“2010 DRAFT EIS”); *see also* 2010 DRAFT EIS at 1-16 (“The construction, operation and maintenance of the MRGO caused the loss of approximately 24,610 acres and indirectly to an additional loss of 33,920 acres. Approximately 63,178 acres of land is estimated to have been lost in the study area from 1985 through 2010.”).

On October 20, 2000, the EPA commissioned a study concluding:

[T]here has been a tremendous loss to St. Bernard Parish as a result of salt water intrusion in land, trapping and forestry due to the change in the ecosystem.

After eighteen (18) years of meeting and public hearings held by the St. Bernard Coastal Zone Management Advisory Committee, and taking their advice into consideration, th[e Environmental S]ubcommittee's recommendations are:

1. A closure structure at the Bayou la Loutre Ridge incorporating a gated system to protect St. Bernard Parish from a hurricane surge from the MRGO. Several structures need to be in place. This could be implemented at a relatively low cost. The rocks from the landmass into the sound should be removed and used for these additional structures.
2. Bank stabilization/marsh re-creation in Lake Borgne from Bayou Bienvenue to the Mississippi River Levee encompassing St. Bernard and Plaquemines Parishes. This is our number one concern and should be addressed as soon as possible.
3. Implementation of a ten (10) year program to restore and manage our resources that includes a freshwater diversion structure into the Central Wetlands area.
4. Land loss due to salt water intrusion and wave action along the MRGO has been devastating. The right of way, purchased by the Federal Government for the construction and maintenance of the MRGO, has long been out of their boundaries.

The result is that the property of private landowners is being literally washed away. This committee feels that it is only fair these property owners be compensated at fair market value.

The total dollar figures for the projects necessary to mitigate the damages inflicted upon St. Bernard Parish has not been determined. This committee feels that the overall cost will be in the hundreds of millions of dollars.

2000 EPA REPORT at 3-13–14.

Importantly, the 2000 EPA Report included the Army Corps’ “first official estimate of the ecological impacts caused by the [MR-GO] it built and maintains.” 2000 EPA REPORT at 3-14. An Executive Summary of that Report stated that:

The MRGO is a 36-foot deep, 500-foot wide, 76-mile long navigation channel from the Gulf of Mexico to the city of New Orleans, completed in 1965. It has been controversial from the beginning since it destroyed several thousand acres of wetlands in St. Bernard Parish. Wave wash erodes the channel by about 15 feet per year. St. Bernard Parish has long requested the closure of the channel because, in addition to the environmental damage, they believe that the channel serves as a funnel for hurricane surges to enter the parish. In the fall of 1999, the Environmental Protection Agency convened a group to “facilitate and lend structure to the issues involved with the MRGO.”

The group formed an Environmental Subcommittee and tasked it with preparing a report on the environmental impacts of the MRGO. The Corps of Engineers agreed to draft this report. There were three basic impacts caused by construction of the MRGO: 1) habitat loss due to channel excavation, spoil disposal and erosion; 2) shifts in habitat type due to salinity brought in by the MRGO, and 3) increased land loss due to hydrological changes caused by the MRGO. The habitat loss due to construction was estimated by placing the MRGO footprint on maps, superimposing the habitat types in the mid-1960’s, and calculating the amounts of various habitat types that were destroyed. Habitat shifts were estimated using a database from Louisiana Department of Natural Resources that consisted of the habitat composition of various mapping units in 1956 and 1990: Possible increased land loss due to the MRGO was very roughly estimated by first calculating the “baseline” loss by mapping unit. Then the percent of this “baseline” loss that was caused by the hydrological change due to the MRGO was estimated to determine the “without MRGO” loss rate. This loss rate was applied to acres present in 1956; the resulting 1990 acres were compared to existing acres to calculate the possible increased loss.

All of these calculations represent best professional judgment since it is difficult to know the exact location of habitats 35 years ago. The estimate of increased land loss is especially speculative.

Construction of the MRGO and subsequent erosion has caused extensive loss of land in St. Bernard Parish. Nearly 3,400 acres of fresh/intermediate marsh, over 10,300 acres of brackish marsh and over 4,200 acres of saline marsh have been converted to open water or spoil. Over 1,500 acres of cypress swamp and levee forest have become disposal area. A total of nearly 20,000 acres of wetlands have been lost and nearly 4,800 acres of shallow open water have been converted . . . into deep water or disposal area. Habitat shifts caused by saline waters brought in by the MRGO have caused 3,350 acres of fresh/intermediate marsh and 8,000 acres of cypress swamp to shift to brackish marsh. Approximately 7,500 acres of swamp have convened to intermediate marsh. Also, 19,170 acres of brackish marsh and swamp have shifted to saline marsh. If the roughly estimated amount of increased loss is considered, the area influenced by the MRGO could have lost over 3,400 acres of wetlands due to increased tides and salinity.

2000 EPA REPORT at 3-14–15.

But, the 2000 EPA Report recognized that “there is no current consensus [on] the rate of ongoing environmental damage from the MR-GO” and so concluded:

- Preliminary results of the Reevaluation Study indicate that MRGO is a relatively minor factor impacting storm surge impacts. Small surges that do not overtop the Bayou La Loutre Ridge but do gain access via the MRGO are too small to overtop flood protection levees, and thus only impact unprotected areas where development is limited. Larger surges (e.g. from hurricanes) are simulated as being negligibly impacted by a small topographic feature such as the MRGO passage through the ridge.
- Assuming these results are confirmed, questions about the overall safety of the hurricane protection system have not been resolved to everyone’s satisfaction. For example, inquiries made during this study determined that there is no audit to confirm the level of protection afforded by the existing (uncompleted) levee system. Annual monitoring addresses adequacy of maintenance, not the more fundamental issue of hydrologic competence. A fundamental problem is the need for reliable benchmarks to use in surveys of levee heights and marsh and channel elevations.

2000 EPA REPORT at 3-15, 4-7–8. The 2000 EPA Report estimated that “it could be 5 or more years before a closure decision is even reached, and 15 years or longer before it is implemented.” 2000 EPA REPORT at 4-8.

In August and September 2001, two public meetings were held where several hundred people attended as well as representatives from the Army Corps. SPX.0298 at 15. At these meetings, the public representatives expressed these concerns: “1) perception that the MR-GO presents a flooding threat from hurricane storm surge; 2) the environmental damage caused by increased salinity; 3) the erosion of the MR-GO banklines; 4) the decrease in deep-draft traffic using the channel; and 5) the need to keep deep-draft access to the IHNC and Michoud Canal facilities.” SPX.0298 at 15.

In December 2001, the Army Corps considered a total closure of the MR-GO, but no action was taken. SPX.0298 at 16.

Likewise, in 2003, another study commissioned by the Army Corps concluded that:

for low-amplitude storm surges (peak surge having a magnitude of 4 feet or less), the presence of MRGO/Reach 2 increased the storm surge . . . [but] did not cause a significant change or the increase was less than 0.3 feet. In a few situations, notably a slow moving weak storm, the presence of the MRGO/Reach 2 channel actually led to a very small decrease in peak surge/level at the four locations. For higher amplitude storm surges, peak surges on the order of 7 to 12 feet (which included Hurricane Betsy [1965]), changes induced by MRGO/Reach 2 were 0.3 ft or less for all situations.¹³ *The MRGO did however considerably enhance drainage from Lake Pontchartrain through the [Inner Harbor Channel/Gulf Intracoastal Waterway] out to Breton Sound following passage of the storms.*

2006 WESTERINK NOTE at 3 (emphasis added).

The 2000 EPA Report and 2003 Army Corps Study, however, present a very different picture than a November 2004 Army Corps Report that warned that “[t]he Lake Borgne estuarine complex is deteriorating and recent analysis indicates that the rate of wetland loss in the area is accelerating. Rapid action is required to protect the integrity of the southern Lake Borgne shoreline and to prevent continued erosion of the MRGO channel banks from ocean going vessel wakes. Additional ecosystem restoration features are required to address serious ecological problems[.]” 2/9/09 Pls. S.J. Ex. 8 at MRGO 31 (“2004 ARMY CORPS STUDY”). The Army Corps Study also warned of:

[c]ritical action points to avoid near-term (3 to 5 years) threats of shoreline and bayou breaches located [along the MR-GO]. These sites face significant risk of losing the integrity of bayou banks along the shoreline and a potential major breach of the navigational channel into [Lake Borgne]. . . . *A breach between the lake and the MRGO navigation channel would result in rapid wetlands loss as storm waves from the lake and ship wakes from the [MR-GO] channel impact sensitive interior wetlands[.]*

2004 ARMY CORPS STUDY at MRGO 32 (emphasis added).

On June 23, 2005, a draft Army Corps shoreline protection study reported that “[c]hanges in salinity and water circulation in the Lake Pontchartrain Basin caused by the MRGO have increased the rate of wetland loss in the area, and these changes to geomorphic structure in this part of the Deltaic Plain would increase the storm surge of hurricanes and tropical storms that impact this area of coastal Louisiana.” SPX.01148 at 1-15 (U.S. ARMY CORPS OF ENG’RS & LA.

¹³ Hurricane Betsy, however, occurred in 1965 prior to the 1968 expansion of the MR-GO by the Army Corps and thereafter by ship wave erosion. SPX.0169 at 2-5.

DEP'T OF NATURAL RES., MRGO CRITICAL SHORELINE PROTECTION FEASIBILITY STUDY (Draft June 23, 2005) ("2005 ARMY CORPS DRAFT STUDY").

The Army Corps' 2004 and 2005 studies were prophetic.

E. Hurricane Katrina.

On August 26, 2005, a Category 1 storm known as Hurricane Katrina crossed the southern tip of Florida and moved westward into the Gulf of Mexico, becoming a Category 2 storm. SPX.0004 at IV-13.¹⁴

On August 28, 2005, at approximately 12:00 a.m. Central Daylight Time ("CDT"), as Hurricane Katrina rapidly intensified and turned northwest; by 12:00 a.m., that storm reached Category 5 status. SPX.0004 at IV-15.

On August 28, 2005, at 6:00 p.m., Hurricane Katrina was centered 170 miles south-southeast from the mouth of the Mississippi River. SPX.0004 at IV-15–16. By this time, surface winds in southeast Louisiana blew from the east at thirty-five to forty miles per hour. SPX.0004 at IV-16. The wind pushed water into Lake Borgne, which was then three feet above normal levels, and into Lake Pontchartrain, raising the water level there to one foot above normal. SPX.0004 at IV-16. Wave heights east of the Mississippi River entrance reached twenty feet; wave heights north of the Chandeleur barrier islands reached ten feet. SPX.0004 at IV-16. As a result, water "began to inundate the coastal wetlands of [s]outheast Louisiana, east of the Mississippi River." SPX.0004 at IV-16.

As Hurricane Katrina turned north, its intensity decreased by 12:00 a.m. on August 29, 2005, but the water level continued to rise and wave height increased. SPX.0004 at IV-16. Water levels in Lake Borgne (at Paris Road over the GIWW/MRGO) rose 5.5 feet above normal, "completely inundat[ing] much of the wetland system east of the Mississippi River Levees." SPX.0004 at IV-16. Water levels along the southern shore of Lake Pontchartrain reached three feet above normal; waves in the Gulf of Mexico, just east of the mouth of the Mississippi River,

¹⁴ Saffir-Simpson Hurricane Wind Scale:

Category 1	64 to 82 knots	74 to 95 miles per hour
Category 2	83 to 95 knots	96 to 110 miles per hour
Category 3	96 to 112 knots	111 to 129 miles per hour
Category 4	113 to 136 knots	130 to 156 miles per hour
Category 5	137 knots or higher	157 miles per hour or higher

SPX.0004 at IV-13; *see also* NAT'L WEATHER SERV., NAT'L HURRICANE CTR., *Saffir-Simpson Hurricane Wind Scale*, available at <http://www.nhc.noaa.gov/aboutsshws.php>.

reached nearly thirty-five feet; and wave heights north of the Chandeleur Islands reached seventeen feet. SPX.0004 at IV-16.

Hurricane-force winds drove water east and then north into Lake Borgne and against the federal levee system that paralleled the MR-GO:

During the [twelve]-h[ou]r period prior to Katrina making its final landfall, despite its decreasing intensity, the storm pushed a considerable volume of water against the Mississippi River delta and the east-facing levees along the Mississippi River, and in the “pocket” formed by the delta and the Mississippi coast. The storm then pushed that volume of water northward with hurricane strength winds toward the Mississippi coast and into Lakes Borgne and Pontchartrain as the storm tracked to the north. Locally, hurricane force winds from east and east-northeast in advance of the storm center also pushed water against the east-facing levees and floodwalls of the hurricane protection system in Plaquemines, St. Bernard, and Orleans Parishes. The increased water levels in Breton Sound and Lake Borgne allowed considerable wave energy that was generated in the gulf to propagate over and through gaps between the barrier islands, across the inundated wetlands, to the hurricane protection system in Plaquemines, St. Bernard, and Orleans Parishes. Local wave generation also occurred in these inundated areas.

High water levels in Lake Borgne acted to drive water into Lake Pontchartrain (because of the water level difference between the two lakes). In addition to this filling action, locally high winds in Lake Pontchartrain acted to tilt the water surface in the lake, raising the water surface on the downwind side and lowering the water surface on the upwind side of the lake. These same winds created high wave conditions on the downwind side of the lake. Winds blew counterclockwise about the hurricane’s eye, and the storm tracked to the east of Lake Pontchartrain. So as the storm made landfall in Louisiana, tracked north, made final landfall again, and then continued north into Mississippi, wind direction in Lake Pontchartrain changed steadily (winds first from the east, then northeast, then from the north, then northwest, and finally from the west). In response to this changing wind direction, the region of maximum storm surge and high waves translated along the southern half of the lake, moving from west to east.

SPX.0004 at IV-16–17 (March 26, 2007 ARMY CORPS FINAL REPORT).

On August 29, 2005, around 6:00 a.m., Hurricane Katrina made landfall near Buras, Louisiana, as a Category 3 hurricane, with maximum sustained surface winds of 100 knots (115 miles per hour). SPX.0004 at IV-16. Around 9:45 a.m., Katrina crossed the coastline at the border of Mississippi and Louisiana, having weakened only slightly. SPX.0004 at IV-16. By 1:00 p.m., Katrina moved inland and was downgraded to a Category 2. SPX.0004 at IV-16. Throughout landfall, the storm maintained “its large spatial extent.” SPX.0004 at IV-16.

Next, three breaches occurred on the west side of the IHNC canal: one breach at a railroad line near Interstate 10; and two breaches in the floodwall and earth levees further south. SPX.0004 at IV-180. Water began entering low-lying land west of the IHNC early that morning. SPX.0004

at IV-186. Around 6:30 a.m., a small breach of the Seventeenth Street Canal floodwall occurred. SPX.0004 at IV-172. A full breach occurred by around 9:00 a.m., when eyewitnesses reported a rush of water. SPX.0004 at IV-170, IV-172. Floodwater reached six to seven feet near that breach. SPX.0004 at IV-170.¹⁵ At that location, the Seventeenth Street floodwall water reached about 12.4 feet high. SPX.0004 at IV-172. Water in the Seventeenth Street Canal may have been only about 7.3 feet in elevation at the time of the full breach, but eyewitnesses estimated that the water elevation was closer to ten or eleven feet. SPX.0004 at IV-172; *see also* SPX.0004 at IV-194 (flooding in St. Bernard Parish and the Lower Ninth Ward came from two breaches along the IHNC, “overtopping and numerous breaches along the GIWW and MRGO”); 12/6/11 Kemp Direct at 36. At the IHNC Lock, the water level continued to rise one foot per hour between 11:00 p.m. on August 28, 2005, and 9:00 a.m. on August 29, 2005, peaking at around 14.3 feet before 9:00 a.m. SPX.0004 at IV-33–34.

At this juncture, two specific levees within the LPV system become relevant. The first is the Chalmette Levee, designed to protect St. Bernard Parish and the Lower Ninth Ward, that runs along the southern side of Reach 1 and the west side of Reach 2, separating the MR-GO from the Central Wetlands to the southwest. The Chalmette Levee then circles around the southern end of St. Bernard Polder to meet up with the Mississippi River. The second is the New Orleans East Back Levee that runs along the north side of Reach 1 of the MR-GO and the GIWW. The heights of each of these levees ranged from 11.5 to 17.5 feet above mean sea level.¹⁶ 12/6/11 Kemp Direct at 159.

By 5:30 a.m. on August 29, 2005, flood water began entering the Lower Ninth Ward through breaches in the IHNC floodwall. SPX.0004 at IV-196, IV-200. Water overtopped the IHNC floodwall at around 7:30 a.m. SPX.0004 at IV-200. Flood levels in the St. Bernard Parish and the Lower Ninth Ward eventually reached eleven feet. SPX.0004 at IV-200.

Floodwater also came from the Central Wetlands Unit east, as evidenced by the presence of marsh grass on properties east of Paris Road around the Chalmette area. SPX.0004 at IV-199. The interior Forty Arpent Levee, “was completely overtopped [at a 6.5 feet in height,] when

¹⁵ High-water marks (“HWMs”) occur where storm surge debris is left behind, indicating the maximum floodwater height during the storm. SPX.0004 at IV-17–18 (describing HWMs). After Katrina, the United States Geological Survey, the Army Corps, the Federal Emergency Management Agency, and the Louisiana State University identified approximately 790 HWMs. SPX.0004 at IV-18–19; *see also id.* at IV-1-180–274 (Plate 1-1) (summarizing high water marks). Approximately ninety-five of the HWMs were found to be the most reliable, because they were measured on interiors that sheltered the storm water level from waves and wind-blown water effects. SPX.0004 at IV-19. Hydrographs also can be used to measure water level over time, with better accuracy and less bias, but most failed prior to Katrina’s peak. SPX.0004 at IV-18. Photographs and visual observation, however, were used to make “constructed hydrographs.” SPX.0004 at IV-18. Over 200 eyewitnesses were interviewed. SPX.0004 at IV-164–65.

¹⁶ The developed portion of St. Bernard Polder averages 2.5 feet above mean sea level. SPX.0029 at 13; 12/6/11 Kemp Direct at 38.

floodwaters from the MRGO flowed through breaches to fill the Central Wetlands beyond this level.” 12/6/11 Kemp Direct at 36.

By August 29, 2005, around 8:25 a.m. water overtopped the Forty Arpent levee as a result of breaches along the MRGO Reach 2 levees that occurred earlier that morning. 12/6/11 Kemp Direct at 74; *see also* RPX1975, RPX2121 (videos showing flooding at the Forty Arpent Levee). Simultaneously, floodwater also arrived in Chalmette, quickly inundating the area with approximately ten feet of water. SPX.0004 at IV-199. By mid-morning, floodwaters from the IHNC breaches to the west merged with the floodwaters from the Chalmette area to the east. SPX.0004 at IV-199.

During Hurricane Katrina, the level of the GIWW/MRGO and IHNC intersection was approximately 15 to 15.4 feet above normal, with similar levels experienced at the confluence between the GIWW and MR-GO. SPX.0004 at IV-39. The surge along Reach 2 ranged from 16.5 to 21.7 feet. SPX.0004 at IV-40.

After Hurricane Katrina, approximately 70% of the MR-GO levee was breached; most of those breaches occurred along Reach 2. SPX.0005 at V-115–16. The water from those breaches entered the Central Wetlands Unit and subsequently flooded St. Bernard Parish. 12/6/11 Kemp Direct at 87. As for the Lower Ninth Ward, “water originating in Lake Borgne traveled up the MRGO, into the IHNC, and through the breached IHNC flood walls.” 12/6/11 Kemp Direct at 87.

On December 20, 2005, the National Hurricane Center summarized the flooding that resulted from substantially increased storm surge during Hurricane Katrina as follows:

High water mark data . . . also indicate a storm surge of 15 to 19 ft occurred in eastern New Orleans, St. Bernard Parish, and Plaquemines Parish, while the surge was 10 to 14 ft in western New Orleans along the southern shores of Lake Pontchartrain. Farther west, observations indicate a storm surge of 5 to 10 ft along the shores of western Lake Pontchartrain. The surge severely strained the levee system in the New Orleans area. Several of the levees and floodwalls were overtopped and/or breached at different times on the day of landfall. Most of the floodwall and levee breaches were due to erosion on the back side caused by overtopping, but a few breaches occurred before the waters reached the tops of the floodwalls. The surge overtopped large sections of the levees east of New Orleans, in Orleans Parish and St. Bernard Parish, and it also pushed water up the Intracoastal Waterway and into the Industrial Canal. The water rise in Lake Pontchartrain strained the floodwalls along the canals adjacent to its southern shore, including the 17th Street Canal and the London Avenue Canal. Breaches along the Industrial Canal east of downtown New Orleans, the London Avenue Canal north of downtown, and the 17th Street Canal northwest of downtown appear to have occurred during the early morning on 29 August. Overall, about 80% of the city of New Orleans flooded, to varying depths up to about 20 ft, within a day or so after landfall of the eye.

SPX.0500 at 9.

The court was unable to determine the precise percentage of residences in St. Bernard Parish and the Lower Ninth Ward that were severely damaged or destroyed by Hurricane Katrina, but sources indicate that between 68% and 98% of homes were severely damaged or destroyed. *See, e.g., Hurricane Katrina Statistics Fast Facts*, CNN, <http://www.cnn.com/2013/08/23/us/hurricane-katrina-statistics-fast-facts/> (last visited April 30, 2015); THE DATA CTR., CURRENT HOUS. UNIT DAMAGE ESTIMATES, HURRICANE KATRINA, RITA, & WILMA at 25 (Feb. 12, 2006), *available at* https://gnocdc.s3.amazonaws.com/reports/Katrina_Rita_Wilma_Damage_2_12_06___revised.pdf (showing that 9,777 of 14,037, *i.e.*, 70%, of owner-occupied housing and 13,695 of 20,229, *i.e.*, 68%, of renter-occupied housing in St. Bernard Parish was classified as “Severe/Destroyed”)¹⁷; THE DATA CTR., CURRENT HOUS. UNIT DAMAGE ESTIMATES, HURRICANE KATRINA, RITA, & WILMA at 39 (Feb. 12, 2006), *available at* https://gnocdc.s3.amazonaws.com/reports/Katrina_Rita_Wilma_Damage_2_12_06___revised.pdf (showing that 2,595 of 2,975, *i.e.*, 87%, of owner-occupied housing and 4,679 of 5,701, *i.e.*, 72%, of renter-occupied housing in the Lower Ninth Ward was classified as “Severe/Destroyed”)¹⁸; CMTY. CTR. OF ST. BERNARD PARISH, ANNUAL REPORT 2008, *available at* <http://www.ccstb.org/images/annrep2008.pdf> (stating that “93% of homes in St. Bernard Parish were rated as ‘severely damaged’ or ‘destroyed’”); 12/6/11 Kemp Direct at 38 (estimating that flooding damaged 98% of all structures in St. Bernard Parish and the Lower Ninth Ward). Properties in Delacroix and Yscloskey, outside the federal levees, had to be torn down and rebuilt due to flooding. 12/12/11 TR 128–29 (Walsh).

On September 30, 2005, the Army Corps and the Louisiana Department of Natural Resources issued a Project Management Plan recognizing the need “to investigate various environmental restoration strategies requested in response to public concerns over the proposed plan to stabilize the MRGO navigation channel[.]” SPX.01146 at 1-9.

A 2006 Senate Report on Hurricane Katrina concluded, as for the areas within the federal levee system, that the MRGO:

contributed to a potential “funnel” for storm surges emerging from Lake Borgne and the Gulf into the New Orleans area. . . . Prior to Hurricane Katrina, many warned that the potential funnel would accelerate and intensify storm surges emerging from Lake Borgne and the Gulf into the downtown New Orleans area. The funnel had been described as a “superhighway” for storm surges or the “Crescent City’s Trojan Horse” that had the potential to “amplify storm surges by 20 to 40 percent,” according to some storm modeling. Researchers at LSU believed that in creating this funnel, “the US Army Corps of Engineers had inadvertently designed an excellent storm surge delivery system—nothing less—to bring this

¹⁷ In St. Bernard Parish, an additional 3,906 owner-occupied residences were classified as “Major Damage” and 286 as “Minor Damage” from flooding. And, 1,947 renter-occupied residences were classified as “Major Damage” and 228 as “Minor Damage” from flooding.

¹⁸ In the Lower Ninth Ward, an additional 331 owner-occupied residences were classified as “Major Damage” and 44 as “Minor Damage” from flooding. And, 515 renter-occupied residences were classified as “Major Damage” and 109 as “Minor Damage” from flooding.

mass of water with simply tremendous ‘load’—potential energy—right into the middle of New Orleans.”

SPX.0692 at 123–24 (footnotes omitted).

As for the immediately adjacent areas outside the federal levee system, where some of the representative Plaintiffs’ properties were located,¹⁹ Plaintiffs’ expert, Dr. Kemp testified at trial:

Based on my observations and analysis, as well as my familiarity with the area under consideration, I conclude that if the MRGO had not been constructed, the areas in and around present-day Shell Beach, Yscloskey and Alluvial City would not have been so exposed to wind-driven water under non-hurricane conditions. Not only would the very wide and deep MRGO channel not exist, the buffering wetlands that were destroyed or greatly reduced by the MRGO would still largely be in place, as would the so-called Lake Borgne land bridge. In addition, Bayou Yscloskey would have remained the dead-end tidal creek that it was prior to the MRGO’s construction, and would not serve as the highly efficient hydraulic connection between Lake Borgne and these communities that it has been in more recent years.

12/6/11 Kemp Direct at 239–40.

¹⁹ Some of Plaintiffs’ properties in Shell Beach, Yscloskey and Alluvial City were close to the expanded MR-GO channel and the retreating Lake Borgne shoreline. Near Shell Beach, the MR-GO width expanded from 500 feet in 1965 to 1600 feet to date. 12/6/11 Kemp Direct at 235 (collecting sources).



Figure 2.12. Area east of the LPV flood protection system along Bayou Yscloskey and the Bayou LaLoutre ridge, showing location of MRGO Rock Dam where the LaLoutre Ridge was bisected by the MRGO.

12/6/11 Kemp Direct at 43 (fig 2.12) (limit of the Chalmette Levee).

F. After Hurricane Katrina, Storm Surge Continued To Cause Intermittent Flooding, And The Army Corps Of Engineers Closed The Mississippi River Gulf Outlet In July 2009.

On September 24, 2005, Hurricane Rita, a Category 3 storm, flooded significant portions of the St. Bernard Polder a second time with an average elevation of five to six feet. NAT'L WEATHER SERV. at 54–55 (describing the progression of Hurricane Rita). In addition, all of Plaintiffs' properties outside the levees flooded. 12/6/11 Kemp Direct at 254–59.

In 2006, Congress authorized the restoration of the hurricane protection system. Emergency Supplemental Appropriations to Address Hurricanes in the Gulf of Mexico, Pub. L. No. 109-148, 119 Stat. 2680, 2761–63 (2006); *see also* Emergency Supplemental Appropriations Act, Pub. L. No. 109-234, 120 Stat. 418, 453–55 (2006).

As a result, the Hurricane and Storm Damage Risk Reduction System (“HSDRRS”) recommended:

a perimeter of levees, floodwalls, pump stations, closure structures, [and] surge barriers that provide storm damage risk reduction for the area interior to that perimeter. In the greater New Orleans area the authorizations for construction of this system were provided to build this to a level of risk reduction for a storm that has a one percent annual probability of occurrence. In New Orleans it's comprised of two distinct projects. The Lake Pontchartrain and Vicinity Project which is on the east side of the Mississippi River, and of course the Mississippi River traverses

the city more or less in an east/west orientation, so it's the project features that you see depicted on the map north of the river. Then on the west bank, the West Bank and Vicinity Project, a similar perimeter of levees, floodwalls, pump stations, surge barriers, and closure structures.

12/14/11 TR 862–63 (Park); *see also* DX-49, DX215 (HSDRRS Map as of Oct. 31, 2011).

The HSDRRS substantially increased the height of the levees surrounding St. Bernard Polder to between 26 and 32 feet above mean sea level. 2/9/11 Gilmore Dep. 10. Shell Beach, Yscloskey, Hopedale and Delacroix, however, are outside the perimeter of the HSDRRS. 12/14/11 TR 881–82 (Park).

On June 5, 2008, the Army Corps also decided to “deauthorize” the MR-GO. *See* 73 Fed. Reg. 57340, 57341 (Oct. 2, 2008). On that same date, the Assistant Secretary of the Army for Civil Works sent a Final MR-GO Deep-Draft De-authorization Report to Congress. *Id.*

On September 1, 2008, Hurricane Gustav made landfall in southeast Louisiana as a Category 2 storm, with winds gusting to 117 miles per hour. NAT’L WEATHER SERV. at 10, 56. A ten-foot surge overtopped some levees in New Orleans, but flooding was not widespread. NAT’L WEATHER SERV. at 56. Minimal flooding occurred in St. Bernard Polder (inside the levees) except near the IHNC floodwall (2414 Deslonde St. property). 12/6/11 Kemp Direct at 264. But, Gustav caused flooding outside the levees, with a nine-foot surge at Shell Beach and a ten-foot surge at Delacroix. 12/6/11 Kemp Direct at 265. As the Government expert further testified:

This Category 2 hurricane . . . threatened to once again flood New Orleans [and] was important in waking the [Army Corps] to the true threat of the MRGO funnel. One ship and two large barges broke loose in the IHNC and piled up on the railroad bridge threatening to cause far worse overtopping of the newly refurbished IHNC floodwalls. It was after this near tragedy that planning began in earnest for the IHNC Surge Barrier.

12/6/11 Kemp Direct at 265; *see also* 12/13/11 TR 631–32 (Robin) (testifying that Gustav flooded Mr. Robin’s property in Yscloskey with several feet of water).

The Government’s 2008 FEMA flood insurance studies predicted that “[d]amaged levees, decimated wetlands, and the still-open MRGO have left the parish vulnerable to future storms.” SPX.0423 at 3; *see also id.* (citing other risk analyses performed by FEMA and the Army Corps, described at Pls. 4/13/12 Prop. FOF ¶¶ 396–406).

Two weeks later, on September 13, 2008, Hurricane Ike made landfall as a Category 1 storm. Dr. Kemp testified that Hurricane Ike resulted in an 8.5-foot surge at Delacroix. 12/6/11 Kemp Direct at 265; *see also* 12/13/11 TR 632 (Robin) (Hurricane Ike flooded Mr. Robin’s property.).

After Hurricane Katrina other hurricanes and severe storms continued to generate storm surge that repeatedly flooded all of Plaintiffs' properties.²⁰

In late July 2009, the Army Corps closed the MR-GO permanently. *See* U.S. ARMY CORPS OF ENG'RS, MRGO NAVIGATION CHANNEL CLOSURE, <http://www.mvn.usace.army.mil/Missions/Environmental/MRGOEcosystemRestoration/MRGODEAuthorization.aspx> (last visited Apr. 30, 2015) ("MR-GO CLOSURE").

II. DISCUSSION.

A. Jurisdiction.

The United States Court of Federal Claims has jurisdiction under the Tucker Act, 28 U.S.C. § 1491, "to render judgment upon any claim against the United States founded either upon the Constitution, or any Act of Congress or any regulation of an executive department, or upon any express or implied contract with the United States, or for liquidated or unliquidated damages in cases not sounding in tort." 28 U.S.C. § 1491(a)(1). The Tucker Act, however, is "a jurisdictional statute; it does not create any substantive right enforceable against the United States for money damages. . . . [T]he Act merely confers jurisdiction upon [the United States Court of Federal Claims] whenever the substantive right exists." *United States v. Testan*, 424 U.S. 392, 398 (1976).

Therefore, to pursue a substantive right under the Tucker Act, a plaintiff must identify and plead an independent contractual relationship, Constitutional provision, federal statute, and/or executive agency regulation that provides a substantive right to money damages. *See Todd v. United States*, 386 F.3d 1091, 1094 (Fed. Cir. 2004) ("[J]urisdiction under the Tucker Act requires the litigant to identify a substantive right for money damages against the United States separate from the Tucker Act[.]"); *see also Fisher v. United States*, 402 F.3d 1167, 1172 (Fed. Cir. 2005) (*en banc*) ("The Tucker Act . . . does not create a substantive cause of action; . . . a plaintiff must identify a separate source of substantive law that creates the right to money damages. . . . [T]hat source must be 'money-mandating.'"). Specifically, a plaintiff must demonstrate that the source of substantive law upon which he relies "can fairly be interpreted as mandating compensation by the Federal Government[.]" *United States v. Mitchell*, 463 U.S. 206, 216 (1983) (quoting *Testan*, 424 U.S. at 400). And, the plaintiff bears the burden of establishing jurisdiction by a preponderance of the evidence. *See Reynolds v. Army & Air Force Exch. Serv.*, 846 F.2d 746, 748 (Fed. Cir. 1988) ("[O]nce the [trial] court's subject matter jurisdiction [is] put

²⁰ Specifically, after Hurricane Katrina, approximately sixteen percent of Plaintiffs' properties, located within the federal levees and the Forty Arpent Levee in St. Bernard Parish and the Lower Ninth Ward, flooded three times, thirty-nine percent flooded twice, and forty-five percent flooded once, *i.e.* totaling 100%. 12/6/11 Kemp Direct at 266. One property, Paris Road Shipyard, inside the federal levee but outside the Forty Arpent Levee, flooded during Hurricanes Rita and Gustav. 12/6/11 Kemp Direct at 266. The Adams property nearest the IHNC floodwall also flooded during Hurricane Rita. 12/6/11 Kemp Direct at 266. The overtopping of the IHNC floodwall during Hurricane Gustav also flooded Plaintiffs' properties in the area. 12/6/11 Kemp Direct at 266.

in question [the plaintiff] bears the burden of establishing subject matter jurisdiction by a preponderance of the evidence.”).

The court previously determined that it had jurisdiction to adjudicate the Fifth Amendment Takings Clause claim alleged in Plaintiffs’ January 13, 2006 First Amended Complaint and January 31, 2008 Second Amended Complaint. *See Tommaseo I*, 75 Fed. Cl. at 802–07; *St. Bernard Parish I*, 88 Fed. Cl. at 545–49. In *Tommaseo I*, the court determined that it also had subject matter jurisdiction, pursuant to the Tucker Act, to adjudicate claims alleged in the January 13, 2006 First Amended Complaint, but leave was granted to allow Plaintiffs to amend their Complaint to specify when Plaintiffs became property owners and to show cause why Counts I and III of the January 13, 2006 First Amended Complaint were not barred by the statute of limitations for failure to specify the precise dates of the alleged takings. *See Tommaseo I*, 75 Fed. Cl. at 803–07. In addition, Count II of the January 13, 2006 First Amended Complaint was dismissed as not ripe for adjudication, because the MR-GO was not closed. *See id.* at 803. But, Plaintiffs could refile if and when the MR-GO closed. *See id.* In *St. Bernard Parish I*, the court denied: the Government’s Motion For Summary Judgment on statute of limitations grounds, because the stabilization doctrine applied, delaying the accrual of Plaintiffs’ claims; and the Government’s Motion To Dismiss, pursuant to RCFC 12(b)(6), for failure to state a claim upon which relief can be granted, because Plaintiffs’ January 31, 2008 Second Amended Complaint and the record established the plausibility of Plaintiffs’ claims. *See St. Bernard Parish I*, 88 Fed. Cl. at 552–59. In addition, the court dismissed Paragraph 48 of Count I of Plaintiffs’ January 31, 2008 Second Amended Complaint that “request[ed] ‘lost benefits’ and ‘profits’ of Plaintiffs’ ‘commercial ventures,’” because “[t]he Just Compensation Clause only affords a financial remedy for property loss caused by the physical taking of private property.” 88 Fed. Cl. at 549 (citations omitted).²¹

On July 6, 2011, Plaintiffs filed a Third Amended Complaint that also pled a Fifth Amendment Takings Clause claim. *See* U.S. CONST. amend. V (“[P]rivate property [shall not] be taken for a public purpose, without just compensation.”); *see also Ark. Game & Fish Comm’n v. United States*, 133 S. Ct. 511, 519 (2012) (“[T]akings temporary in duration can be compensable.”); *id.* at 522 (“We rule today, simply and only, that government-induced flooding temporary in duration gains no automatic exemption from Takings Clause inspection.”).

Accordingly, the court has determined that it has jurisdiction to adjudicate the Takings Clause claim in Plaintiffs’ July 6, 2011 Third Amended Complaint.

B. Standing.

Article III standing is a jurisdictional prerequisite that the court must ascertain, even if not raised by the parties. *See Fuji Photo Film Co. v. Int’l Trade Comm’n*, 474 F.3d 1281, 1289 (Fed. Cir. 2007) (“Because Article III standing is jurisdictional, this court must consider the issue sua

²¹ In its April 13, 2013 Post-Trial Brief, the Government argued that the court did not have jurisdiction to adjudicate Plaintiffs’ July 6, 2011 Third Amended Complaint, because: Plaintiffs did not prove that any alleged flooding was the direct, natural, or probable result of the MR-GO. Gov’t 4/13/12 Br. at 24–36. But, these arguments go to the merits and thus are addressed below.

sponte[.]”). The United States Supreme Court has instructed that the plaintiff has the burden to establish three elements before a federal trial court may adjudicate an alleged takings claim. First, “‘injury in fact,’ by which we mean an invasion of a legally protected interest that is ‘(a) concrete and particularized, and (b) actual or imminent, not conjectural or hypothetical[.]’” *Ne. Fla. Chapter of Associated Gen. Contractors v. City of Jacksonville*, 508 U.S. 656, 663 (1993) (quoting *Lujan v. Defenders of Wildlife*, 504 U.S. 555, 560 (1992)). Second, “a causal relationship between the injury and the challenged conduct[.]” *Id.* Third, “a likelihood that the injury will be redressed by a favorable decision, by which we mean that the ‘prospect of obtaining relief from the injury as a result of a favorable ruling’ is not ‘too speculative.’” *Id.* at 663–64 (quoting *Allen v. Wright*, 468 U.S. 737, 752 (1984)). “These elements are the ‘irreducible minimum’ required by the Constitution.” *Id.* at 664 (quoting *Valley Forge Christian Coll. v. Americans United for Separation of Church & State, Inc.*, 454 U.S. 464, 472 (1982)).

The court previously determined that “the January 31, 2008 Second Amended Complaint . . . alleged sufficient facts to establish standing, as each of the[] Plaintiffs owned property in St. Bernard Parish or the Ninth Ward of the City of New Orleans that has experienced severe flooding in 2005 and intermittent reoccurring flooding fairly traceable to the construction, operation (expansion), or maintenance (dredging) of the MR-GO, and a favorable decision will redress injury from the flooding.” *St. Bernard Parish I*, 88 Fed. Cl. at 548. The Plaintiffs identified in Plaintiffs’ January 31, 2008 Second Amended Complaint and July 6, 2011 Third Amended Complaint are identical, and the parcels of representative Plaintiffs are substantially similar. *Compare* 2nd Am. Compl. ¶¶ 2 (Representative Plaintiffs), 15–45 (properties of representative Plaintiffs), *with* 3rd Am. Compl. ¶¶ 2 (Representative Plaintiffs), 15–45 (properties of representative Plaintiffs).²²

For these reasons, the court has determined that Plaintiffs’ July 6, 2011 Third Amended Complaint alleges sufficient facts to establish standing, as each owned property in St. Bernard Parish or the Ninth Ward of the City of New Orleans that was flooded during Hurricane Katrina in 2005 and experienced intermittent flooding fairly traceable to increased storm surge resulting from the construction, expansions, operation, and failure to maintain the MR-GO, and a favorable decision will redress injury from the flooding.

²² One hundred four properties identically are listed in both the January 31, 2008 Second Amended Complaint and July 6, 2011 Third Amended Complaint. In addition, eighteen properties are identified in the January 31, 2008 Second Amended Complaint, but not in the July 6, 2011 Third Amended Complaint. Thirteen properties are identified in the July 6, 2011 Third Amended Complaint, but not in the January 31, 2008 Second Amended Complaint. Eleven properties are identified in both the January 31, 2008 Second Amended Complaint and the July 6, 2011 Third Amended Complaint, but the individual registered owner changed. *Compare* 2nd Am. Compl. ¶¶ 15–45 (properties of representative Plaintiffs), *with* 3rd Am. Compl. ¶¶ 15–45 (properties of representative Plaintiffs). In sum, the January 31, 2008 Second Amended Complaint lists a total of 133 properties, whereas the July 6, 2011 Third Amended Complaint lists a total of 128 properties.

C. Admissibility And Weight Of Witness Testimony.

1. Lay Witness Testimony.

According to the Government, causation in complex flooding cases requires the court to rely primarily, if not exclusively, on the testimony of experts instead of lay witnesses. Gov’t 4/13/12 Br. 37 (citing *Hendricks v. United States*, 14 Cl. Ct. 143, 149 (1987) (“Causation of flooding is a complex issue which must be addressed by experts.”); *Loesch v. United States*, 227 Ct. Cl. 905, 914 (1981) (observing that expert testimony “is particularly appropriate” where “the trier of fact is presented with evidence of a highly technical nature involving geotechnical, hydrologic, hydraulic, geological and climatic matters”)). Lay testimony should receive “little weight in determining causation” in flooding cases. Gov’t 4/13/12 Br. 37 (quoting *Alost v. United States*, 73 Fed. Cl. 480, 495 (2006), *aff’d*, 25 F. App’x 823 (Fed. Cir. 2007)); *see also* *Leeth v. United States*, 22 Cl. Ct. 467, 486–87 (1991) (“While a lay person merely through observation can identify that a backwater effect is occurring at a particular point, the source of that effect cannot be identified by that lay person because it would ‘look the same’ regardless of its cause.”).

The Government overstates relevant caselaw. It is true that the Court of Claims in *Hendricks* observed that “[c]ausation of flooding is a complex issue which must be addressed by experts,” but it elaborated, in the very next sentence, that “the bulk of the lay testimony is accorded very little weight in the court’s decision of the *legal* issues.” *See* 14 Cl. Ct. at 149 (emphasis added). As such, the Court of Claims did not endorse the concept that only experts could proffer relevant evidence of causation, instead that lay evidence is not dispositive of legal issues.

It is also true that the United States Court of Federal Claims determined, in *Alost*, that the lay evidence presented in that case was “entitled to little weight.” 73 Fed. Cl. at 495. But, the only evidence presented in that case was adduced from lay witnesses with little knowledge about the history of flooding in that case. *Id.* In this case, the record includes a plethora of Government and academic reports and studies and expert testimony. In addition, the record includes extensive testimony of lay witnesses who were intimately familiar with the history of flooding in the area and were able to share their first-hand observations about the adverse environmental conditions created by the construction, expansions, operation, and failure to maintain the MRGO and substantially increased storm surge during Hurricane Katrina and subsequent hurricanes and severe storms that repeatedly flooded Plaintiffs’ properties.²³ For these reasons, the court rules that the lay testimony in this case, though not dispositive, is relevant and probative.

²³ The court would be remiss if it did not state that it was not impressed with the Government’s attempt to belittle and trivialize the “lay” testimony of Louisiana natives with first-hand knowledge of the ecology of the area, equal to if not more relevant than that of an expert. For example, Mr. Robin has been a commercial fisherman and observed marsh ecology since he was a child. 12/13/11 TR 591, 610–13, 615–16, 647–48 (Robin). Likewise, Mr. Estopinal, a local resident, land surveyor, and civil engineer, was competent to testify about the adverse environmental impact of the construction, expansions, operation, and failure to maintain the MRGO. 12/12/11 TR 75–77, 80–83, 89–90, 109 (Estopinal).

2. Expert Witness Testimony.

The Government also argues that the United States Court of Claims previously has rejected expert testimony about flooding and erosion, where the expert “failed to give reasonable consideration to other clearly shown possibilities.” Gov’t 4/13/12 Br. 39 (quoting *Loesch*, 227 Ct. Cl. at 915). Therefore, absent “supportive empirical data and study,” the expert’s “opinion . . . was not very helpful to the trier of fact.” Testifying as to the existence of a temporal relationship does not establish causation, and therefore, courts have rejected “this type of *post hoc ergo propter hoc* (literally, ‘after this, therefore because of this’)” reasoning as a “logical fallacy.” Gov’t 4/13/12 Br. 39 (citing *Loesch*, 645 F.2d at 914).

The Government does not cite to a single case holding that causation cannot be established without expert modeling. And, as the trial court in *Ark. Game & Fish* aptly observed, computer modeling is not the only or, even, the best form of expert analysis. *See* 87 Fed. Cl. at 628 (“[T]he fact that the model was ‘very reliable and more accurate than [other] simulation models’ and offered output that was ‘far better than what you would typically expect from river modeling’ does not indicate that results from its use should be employed to displace actual observations.”) (internal quotation marks omitted); *see also* 12/13/11 TR 574 (Kemp) (stating that the hydrologic influence of the MR-GO was obvious through observation alone).

In this case, Plaintiffs proffer the expert testimonies of: Dr. G. Paul Kemp (12/6/11 Kemp Direct 1–272 & Exs. 1–8; 12/12/11 TR 188–399; 12/13/11 TR 400–582); and Dr. Joseph N. Suhayda (12/6/11 Suhayda Direct 1–32; 12/13/11 TR 657–798; 12/14/11 TR 799–836). The Government proffers the expert testimonies of: Dr. Louis D. Britsch III (12/8/11 Britsch Direct 1–31; 12/14/11 TR 892–995); and Donald T. Resio (12/8/11 Resio Direct 1–43; 12/14/11 TR 996–1199). As more fully explained in the court’s May 1, 2015 Memorandum Opinion And Final Order On Evidentiary Issues, the court rules that Drs. Kemp, Suhayda, Britsch, and Resio are all qualified as expert witnesses and that their testimony: “will help the trier of fact to understand the evidence”; “is based on sufficient facts or data”; “is the product of reliable principles and methods”; and “the expert has reliably applied the principles and methods to the facts[.]” FED. R. EVID. 702.

For these reasons, the court rules that the expert testimony in this case, though not dispositive, is relevant and probative.

D. Plaintiffs Established That The Army Corps Of Engineers’ Construction, Expansions, Operation, And Failure To Maintain The Mississippi River Gulf Outlet Effected A Temporary Taking By Increased Storm Surge And Flooding Of Plaintiffs’ Properties During Hurricane Katrina And Subsequent Hurricanes And Severe Storms.

The June 7, 2011 Third Amended Complaint alleges at Count II a “temporary taking of property.” 6/7/11 Third Am. Compl. ¶¶ 53–55.

The Takings Clause of the Fifth Amendment to the United States Constitution provides that “private property [shall not] be taken for public use, without just compensation.” U.S. CONST. amend. V. “[I]t is most reasonable to construe the reference to ‘private property’ in the Takings

Clause . . . as encompassing the property of state and local governments when it is condemned by the United States. Under this construction, the same principles of just compensation presumptively apply to both private and public condemnees.” *United States v. 50 Acres of Land*, 469 U.S. 24, 30 (1984).

Whether a compensable taking has occurred requires the court to resolve “a question of law based on factual underpinnings.” *Wyatt v. United States*, 271 F.3d 1090, 1096 (Fed. Cir. 2001) (citations omitted). In *Arkansas Game & Fish*, the United States Supreme Court held that where a temporary taking is alleged, as in this case, plaintiffs must establish: (1) a protectable property interest under state law; (2) the character of the property and the owners’ “reasonable-investment backed expectations”; (3) foreseeability; (4) causation; and (5) substantiality. *See* 133 S. Ct. at 522–23.

1. Plaintiffs Established That They Held Protectable Property Interests Recognized Under Louisiana Law.

The Third Amended Complaint alleges that Plaintiffs in this case have real property interests in fee ownership under Louisiana law. 6/7/11 3rd Am. Compl. ¶¶ 15–19, 25, 29, 30–31, 33–36, 38, 40–42, 43–45.

To maintain an action for a compensable taking under the Fifth Amendment, Plaintiffs must show that they have a protectable property interest under state law. *See Phillips v. Wash. Legal Found.*, 524 U.S. 156, 164 (1998) (“Because the Constitution protects rather than creates property interests, the existence of a property interest is determined by reference to ‘existing rules or understandings that stem from an independent source such as state law.’”) (quoting *Bd. of Regents of State Colls. v. Roth*, 408 U.S. 564, 577 (1972)).

Section 1 of Title 19, Part I of the Louisiana Revised Statute, governing expropriation states: “As used in this part, the term ‘property’ means immovable property, including servitudes and other rights in or to immovable property.” LA. REV. STAT. ANN. § 19:1 (1975).

Title 33 further provides that:

“Owner” is defined as any person with care, custody, or control of the property at issue, including but not limited to record owners, seizing creditors, mortgage holders, lien holders, loan servicers of foreclosed property pending title transfer, or an agent of assignee of the seizing creditor, mortgage holders, lien holders, or loan servicer.

LA. REV. STAT. ANN. § 33:5066(5) (2012).

At trial, Plaintiffs presented evidence that each had an ownership interest in “property,” as defined by the Louisiana Revised Statute. *See* Court Exhibit B.

For these reasons, the court has determined that Plaintiffs established that they held protectable property interests, recognized under Louisiana law.

2. Plaintiffs Established That, Based On The Character Of Their Property Interests, They Had “Reasonable Investment-Backed Expectations.”

Plaintiffs’ properties consisted of vacant land, modest personal residences, and small businesses. Court Exhibit B; *see also* 3rd Am. Compl. ¶¶ 15–45.

In a temporary takings case concerning flooding, a property owner’s “reasonable investment-backed expectations” necessarily must consider knowledge of any prior flooding. *See Ark. Game & Fish*, 133 S. Ct. at 521 (“Flooding cases like other takings cases, should be assessed with reference to the ‘particular circumstances of each case[.]’”).

The Government argues that Plaintiffs were aware of the risks of owning property in a floodplain after Hurricane Betsy on September 19, 1965 and:

were aware of significant ecological changes in the St. Bernard region almost immediately after construction of the MRGO began. . . . Whatever the impact on the environment generally, Plaintiffs’ own testimony proves that, during the period between the completion of the MRGO and Hurricane Katrina, the LPV protected Plaintiffs’ properties within the levee system from flooding.

Gov’t 4/13/12 Br. 7–8 (citing SPX.0704 at 66 (COASTAL ENV’TTS, INC., ENVTL. BASELINE STUDY (Oct. 1972) (“1972 BASELINE STUDY”) (stating that the “MRGO has introduced higher salinities into the study area” and reporting that “[t]estimony of parish residents reveals that most of the swamp has died since the construction of the MRGO”)).

Although the Army Corps represented to the public that their properties were protected by the LPV that was constructed *after* Hurricane Betsy, the public “was not informed about the flooding risks that the selection of the SPH [Standard Project Hurricane] as a basis for design implied [and] . . . the SPH . . . was not revised as knowledge improved after the 1960s.” SPX.0027 at 12-13 (July 31, 2006 ILIT Report); *see also* SPX.0029 at 98 (“Clearly, by 1972, at a relatively early stage in the construction of the GNO HPS [Greater New Orleans Hurricane Protection System], the SPH used as a basis for design was obsolete.”); RDX-377 at 1 (Dec. 1982 USACE Project Reevaluation Study) (noting that the draft reevaluation study did not emphasize the “catastrophic flooding potential of the area”); 12/14/11 TR 1039–40 (Resio) (explaining that the current estimates of 100-year surge level far surpass the estimates used for the old SPH); 12/6/11 Kemp Direct at 268 (same).

In this case, as in *Arkansas Game & Fish*, although Plaintiffs’ properties were in a floodplain and “had experienced flooding in the past,” that flooding was not “comparable” to the flooding during Hurricane Katrina and subsequent hurricanes and severe storms giving rise to the temporary takings claim at issue. *See* 133 S. Ct. at 522.

For these reasons, the court has determined that Plaintiffs established that they had “reasonable investment-backed expectations” concerning the use and value of their vacant land, modest personal residences, and small businesses.

3. Plaintiffs Established That It Was Foreseeable To The Army Corps Of Engineers That The Construction, Expansions, Operation, and Failure To Maintain The Mississippi River Gulf Outlet Would Substantially Increase Storm Surge During Hurricanes And Other Severe Storms And Cause Flooding.

In *Arkansas Game & Fish*, the United States Supreme Court held that “relevant to the taking inquiry is the degree to which the [government’s] invasion is intended *or* the foreseeable result of government action.” See 113 S. Ct. at 522 (citing *John Horstman Co. v. United States*, 257 U.S. 138 (1921)). Furthermore, the United States Court of Appeals for the Federal Circuit held on remand that “[i]n order for a taking to occur it is not necessary that the [G]overnment intend to invade the property owner’s rights, as long as the invasion that occurred was ‘the foreseeable or predictable result’ of the [G]overnment’s actions.” 736 F.3d at 1372 (citing *Moden v. United States*, 404 F.3d 1335, 1343 (Fed. Cir. 2005)) (“[W]e conclude that . . . [plaintiffs] must point to some evidence . . . with regard to whether the [alleged Fifth Amendment taking] was the foreseeable or predictable result of [the Government’s actions.]”); see also *Ridge Line Inc. v. United States*, 346 F.3d 1346, 1356 (Fed. Cir. 2003) (“[S]ince [the plaintiff] does not allege that the [G]overnment intentionally appropriated its property, on remand the court must first determine whether [the plaintiff] proved that the increased storm runoff was the direct, natural, or probable result of the [Government’s action], rather than merely an incidental or consequential injury, perhaps compensable as a tort[.]”).

a. Because Of Increased Salinity.

By 1958, the Army Corps was aware of the adverse effects of salt water on freshwater wetlands and predicted that “[t]he excavation of a channel 36 feet deep, 500 feet wide, and over 70 miles long . . . through the Lake Borgne marshes and shallow inlets of Chandeleur Sound . . . could result in a major ecological change of the area.” RDX-1685 at 24. The Army Corps also knew of the risk posed by the destruction of the land bridge separating the MR-GO from Lake Borgne that would allow higher saline water to move inland. 2005 ARMY CORPS DRAFT STUDY at 1-15 (“Changes in salinity and water circulation in the Lake Pontchartrain Basin caused by the MRGO have increased the rate of wetland loss in the area, and these changes to geomorphic structure in this part of the Deltaic Plain would increase the storm surge of hurricanes and tropical storms that impact this area of coastal Louisiana.”); 12/6/11 Kemp Direct at 239–40.

b. Because Of Increased Habitat/Wetland Loss.

The fact that the Army Corps was aware that the construction, expansions, operation, and failure to maintain the MR-GO caused adverse environmental impacts, and that those “adverse impacts on the regional environment and ecology” could result in substantial increased storm surge during hurricanes and severe storms, is well documented in this record. See, e.g., RDX-1685 at 24 (prior to the construction of the MR-GO, the Army Corps was aware that it “could result in a major ecological change of the area”); RPX0699 (September 1958 Army Corps Memorandum); SPX.0129 at MRGO 12, PDF 362 (Army Corps study stating “The data indicates that land loss rates have accelerated since 1990 and that the rate of wetlands loss now exceeds the rates experienced in the area during the period of MRGO channel construction.”).

c. Because Of Increased Erosion.

Army Corps documents evidence that, as early as 1959, it was aware that foreshore protection was required to prevent erosion of the MR-GO's banks (RPX0699 at 5 (1959 Army Corps Memorandum); SPX.0241 (1983 Army Corps form)), but instead the Army Corps recommended expanding the MR-GO without channel protection to prevent the erosion:

No channel protection is recommended initially, however, erosion due to wave wash in open areas can be expected in the upper part of the channel slope where the peat and highly organic clay are exposed. Protection for this area can be provided if and when the need for it becomes necessary. . . . It is presumed that sufficient rights of way will be furnished by local interests to preclude use of channel protection or that additional rights of ways will be furnished when the need arises.

SPX.0213 at 7 (1957 Army Corps Memorandum).

After construction of the MRGO in 1968, the banks eroded at an estimated twenty-seven to thirty-eight feet per year on the Inland Reach. 2008 ARMY CORPS REPORT at vi. Between 1964 and 1996, 5,324 additional acres of marsh adjacent to the MRGO were lost. 2008 ARMY CORPS REPORT at vi. The Army Corps had to construct additional project features to stabilize the banks. 2008 ARMY CORPS REPORT at vi. By 2006, the MR-GO had expanded well beyond its authorized parameters:

The MRGO bar channel authorized depth is 38 ft; the authorized bottom width is 600 ft. The remainder of the channel has an authorized depth of 36 ft and an authorized bottom width of 400 or 450 ft, depending on location. Due to ship wave erosion, the surface width of the channel has increased since its construction at a rate of up to 15 ft per year. The additional eroded open water typically has a depth of six feet or less. Therefore, even an additional 1000 feet of open water adds no more than 6000 square feet of conveyance, about a 21% increase over the authorized channel (assuming the channel is 40 feet deep, has a 600 ft wide dredged bottom and a 1 to 3 side slope).

2006 WESTERINK NOTE at 1-3 (internal references omitted).



Pls. 2/9/09 S.J. Ex. 12 at iv.

By 1984, the Army Corps concluded:

Construction of the MR-GO has accelerated the natural changes occurring in the St. Bernard Parish wetlands near Lake Borgne. . . . Wind- and wave-generated erosion is also steadily widening the MR-GO. Because of this expansion, the east bank along Lake Borgne is dangerously close to being breached. Once the bank is breached, development to the southwest [*i.e.*, the communities in which Plaintiffs' properties are located] would be exposed to direct hurricane attacks from Lake Borgne.

RPX1639 at 7 (U.S. ARMY CORPS OF ENG'RS, LA. COASTAL AREA: SHORE & BARRIER ISLAND EROSION (1984)).

The Army Corps' policy was to allow bank erosion of the MR-GO to continue unabated. *See* RPX2082 at 2 (restating the Army Corps' "long standing policy against repairing bank erosion"); *see also* SPX.0241 (In 1983, the Army Corps decided to defer "erosion protection to allow for future widening" of MR-GO.). Consequently, by 2004, one year prior to Hurricane Katrina, the majority of the banks of the MR-GO were unprotectable. RPX0716 at 5 (2004 Fact Sheet) ("[T]he MRGO banks remain unlined with protection.").

d. Because Of Increased Storm Surge.

Increased salinity, increased habitat/wetland loss, and increased erosion of the MR-GO's banks cumulatively contributed to increased storm surge. In February 1967, the Army Corps considered, but rejected as too costly, an alternative plan for the flood protection system that would have closed off the mouth of the funnel. RPX1030 (map showing rejected alternate plan); 12/6/11 Kemp Direct at 245 (comparing the rejected alternate plan to the 100-year protection plan).

The Government is correct that knowledge of potential storm surge is not necessarily knowledge of potential flooding. Gov't 4/13/12 Br. 27. But, the trial court in *Arkansas Game & Fish* rejected the same argument. *See* 87 Fed. Cl. 594, 621 (2009) (the fact that the Army Corps initially did not know that “increased river levels caused by deviations from the water control plan would cause additional flooding” on plaintiff’s timber land was not dispositive of foreseeability). As *Arkansas Game & Fish* recognized, foreseeability is measured by an objective standard of what the Government should have known. *See id.* (“The question thus presented becomes whether such flooding *should* have been foreseen, based, for instance, on information that the Corps had or could have gathered[.]”).

e. Because Of The “Funnel Effect.”

The funnel effect caused by the MR-GO further exacerbated the increased storm surge that resulted from Hurricane Katrina. Around September 3, 1957, the St. Bernard Tidal Channel Advisory Committee warned the Army Corps and the public-at-large that “[d]uring times of hurricane conditions, the existence of the [MR-GO] will be an enormous danger to the heavily populated areas of the Parish due to the rapidity of the rising waters reaching the protected areas in full force through the avenue of this proposed channel.” RDX-1145. In 1965, after Hurricane Betsy, a similar warning was published in the *Federal Register* by the Citizens Committee for Hurricane Flood Control. RPX0006 at 3.

In response, the Army Corps developed a plan to build a levee to block the funnel opening. RPX1030 (“Alternate Plan C”); *see also* 1966 ARMY PLAN at 123 (“Storm surge may also be increased, particularly in coastal areas, by a funneling effect in converging open bay mouths.”).

On November 24, 1965, the Citizens Committee for Hurricane Flood Control wrote a letter to the Army Corps requesting action to avoid the type of flooding experienced with Hurricane Betsy and recommending that the Army Corps construct flood gates on the Intercostal Waterway, Bayou Bienvenue, Gulf Outlet, instead of a proposed levee that “would form a funnel, channeling all hurricane surges and wind driven water in the Intercostal Waterway and Industrial Canal[.]” RPX0006 at 3.

In 1966, the Army’s Coastal Engineering Research Center also conducted a study observing that storm surge depends on

the wind velocity, the distance over which it blows, the wind direction, and the water depth. Storm surge is greater in lesser depths, and this is the reason for the generally greater values of storm surge along the Gulf Coast[.] Storm surge may . . . be increased, particularly in coastal areas, by a funneling effect in converging open bay mouths.

1966 ARMY PLAN at 123; 2006 WESTERINK NOTE at 2 (“A portion of the levee protecting St. Bernard Parish/Chalmette and the portion of the hurricane protection levee along the south side of Orleans East Parish, north of the GIWW, form the ‘funnel’ that is often referenced.”).

A 2006 Senate Report on Hurricane Katrina concluded, concerning the areas within the federal levee system, that the MRGO:

contributed to a potential “funnel” for storm surges emerging from Lake Borgne and the Gulf into the New Orleans area. . . . Prior to Hurricane Katrina, many warned that the potential funnel would accelerate and intensify storm surges emerging from Lake Borgne and the Gulf into the downtown New Orleans area. The funnel had been described as a “superhighway” for storm surges or the “Crescent City’s Trojan Horse” that had the potential to “amplify storm surges by 20 to 40 percent,” according to some storm modeling. Researchers at LSU believed that in creating this funnel, “the US Army Corps of Engineers had inadvertently designed an excellent storm surge delivery system—nothing less—to bring this mass of water with simply tremendous ‘load’—potential energy—right into the middle of New Orleans.”

SPX.0692 at 123–24 (footnotes omitted).

* * *

For these reasons, the court has determined that it was foreseeable to the Army Corps that the construction, expansions, operation, and failure to maintain the MR-GO would increase salinity, increase habitat/land loss, increase erosion, and increase storm surge that could be exacerbated by a “funnel effect” and likely cause flooding of Plaintiffs’ properties in a hurricane or severe storm. *See Ark. Game & Fish*, 133 S. Ct. at 522.

4. Plaintiffs Established A Causal Link Between The Army Corps Of Engineers’ Construction, Expansions, Operation, And Failure To Maintain The Mississippi River Gulf Outlet And Significant Increase In Storm Surge And Flooding During Hurricane Katrina And Subsequent Hurricanes And Severe Storms That Flooded Plaintiffs’ Properties.

a. Because Of Increased Salinity.

The adverse effect of salt water on freshwater wetland vegetation in the New Orleans area concerned the academic community well before the construction of the MR-GO. *See* W.T. Penfound & E.S. Hathaway, *PLANT COMMUNITIES IN THE MARSHLANDS OF SOUTHEASTERN LOUISIANA, ECOLOGICAL MONOGRAPHS* (1938)); *see also* AUDUBON EDUCATOR’S GUIDE at 4 (“When saltwater reaches a freshwater habitat, it burns the freshwater plants which are intolerant of the saltwater. The saltwater kills the existing plants, causing the soils to become loose and wash away. This process can also convert what was once a freshwater swamp into a saltwater marsh.”).

In 1962, an Army Corps Report stated that the MR-GO “provides a deep direct route for the inflow of saline currents from the Gulf of Mexico to the area along its channel and to Lake Pontchartrain[.]” RJX0278 (ARMY CORPS INTERIM SURVEY REPORT, LAKE PONTCHARTRAIN, LA. & VICINITY (Nov. 21, 1962)).

A 1966 report also suggested that, “[b]ecause of its size, 500 feet wide by 36 feet deep, the [MRGO] channel will become a major avenue for intrusion of salt water into the marshlands and waters which it traverses.” RPX0818 (LEROY W. GILES, MISS. BUREAU OF SPORT FISHERIES & WILDLIFE, RELATIONSHIP OF VEGETATION TO SALINITY IN A SE. LA. COASTAL MARSH (1966)).

An October 1972 environmental baseline study conducted by Dr. Sherwood Gagliano,²⁴ for St. Bernard Parish was one of the first to discuss the increased salinity resulting from the MRGO:

A change in water regime seems to be the main cause of deterioration [in freshwater swamps along MRGO]. . . . The MRGO has introduced higher salinities into the study area. . . . Thus, it can be expected that the brackish water zone has been moved into the area that was once fresh swamp and the trees have died. Testimony of parish residents reveals that most of the swamp has died since the construction of the MRGO and tends to support this theory.

1972 BASELINE STUDY at 66.

By 1981, the MRGO provided a “more direct flow of higher salinity, stratified water inland toward areas of St. Bernard and Orleans Parishes.” 2008 ARMY CORPS REPORT at xiii (citing WICKER et al. 1981).

The following chart shows salinity measurements during the period when the MRGO was being constructed and afterwards:

Yearly Average Salinity (ppt)²⁵ Pre- and Post-MRGO’s Construction			
	Pre-MRGO	Post-MRGO	
Station	1959–1961	1962–1964	2001
Bayou Bienvenue	1.62	10.0	8.0
Bayou Dupre	2.39	7.8	9.3
Shell Beach	3.50	11.8	-
Hopedale	4.50	13.0	-
Bayou La Loutre	5.50	13.5	14.1
Lake Athansio	14.20	21.5	-
Lake Fortuna	16.80	21.5	-

2010 DRAFT EIS at 3-32 tbl. 3-13; *see also* 12/13/11 TR 616, 623 (Robin) (Mr. Robin is a local oyster farmer who observed salinity levels changes).

²⁴ Dr. Gagliano, P.E., Ph.D, is President of Coastal Environments, Inc. He earned his B.S., M.S., and Ph.D from Louisiana State University.

²⁵ The acronym “ppt” stands for “parts per thousand.”

The impact of the MR-GO on salinity also is evidenced by the decrease of salinity from thirty-two percent to sixty-six percent after the Army Corps closed the MR-GO in 2008–2011.

Yearly Average Salinity (ppt) Pre- and Post-MRGO's Closure			
Location	Pre-Closure	Post-Closure	% Change
Bayou La Loutre	17.01	8.87	48%
Lake Borgne	8.16	5.62	32%
Central Wetlands	14.67	5.26	64%
GIWW	14.72	5.07	66%
Lake Pontchartrain	6.12	4.01	35%

2010 DRAFT EIS at 3-33 tbl. 3-14; *see also* 1972 BASELINE STUDY at 90 (comparing monthly salinity ranges at Hopedale before and after the construction of the MR-GO, using 1957–1967 Army Corps data); *see also* 1972 BASELINE STUDY at 91 (comparing monthly salinity ranges at the Paris Road Bridge before and after the construction of the MR-GO, using 1948–1967 Army Corps data).

These Army Corps documents show that salinity increased substantially in the wetlands in and surrounding the New Orleans Polder after the Army Corps' construction, expansion, operation, and failure to maintain the MR-GO. They also show a significant decrease in salinity after the MR-GO was closed.

An Army Corps December 2010 draft Environmental Impact Statement also recognized that “since construction of the MRGO, circulation patterns have been altered along its length in areas from Breton Sound north to Lake Pontchartrain. The MRGO acted as a direct passage for tidal exchange, allowing a more direct flow of higher-density saline water inland.” 2010 FEASIBILITY REPORT at 2-10. In sum, the decline of wetlands and swamp accelerated after the construction of MR-GO, in “response to changing salinity regimes (salt water intrusion) and hydrology (impoundment).” RJX-195 at 4-2 (7/11/08 Expert Report of Duncan FitzGerald); *see also* 12/14/11 TR 937 (Britsch²⁶) (“I do agree that [the central wetlands unit] became more salty after the construction of the MRGO.”); 12/14/11 TR 964 (Britsch) (“I don’t disagree that the salinity increased due to the MRGO channel.”).

²⁶ Dr. Louis D. Britsch, III is a geologist who manages the Geology Unit of the New Orleans District of the United States Army Corps of Engineers. He obtained his B.S. in Geology from Nicholls State University, his M.S. in Geology from Tulane University, and his Ph.D in Coastal Geology from the University of New Orleans. He has worked for the Army Corps for the past twenty-seven years. *See* 12/8/11 Britsch Direct at 1.

For these reasons, the court has determined that Plaintiffs established a causal link between the construction, expansions, operation, and failure to maintain the MR-GO with increased salinization in the New Orleans Polder.

b. Because Of Increased Habitat And Wetland Loss.

The following table lists the different types of habitats and wetlands that exist within certain salinity ranges.

Habitat And Wetlands By Salinity Range.²⁷

Habitat/ Wetlands	Salinity	Description
Swamp	0–3	Forested coastal wetlands in the study area are dominated by bald cypress and water tupelo, which are the remnants of extensive logging of virgin forest more than 70 years ago. The Louisiana swamps generally lack a mature canopy as was present in colonial forests and have lower productivity where isolated from riverine influences (Shaffer et al 2003).
Fresh Marsh	0–3	Fresh marsh has the highest plant diversity of all the coastal habitat types including as many as 93 species. Floating aquatic and submerged plants are common and are significant for waterfowl. Soils may be highly organic and prone to settlement. Many species of duck and waterfowl use coastal Louisiana and Mississippi as overwintering grounds for foraging of diverse invertebrates, plant roots, and tubers.
Intermediate Marsh	2–8	Intermediate marsh has lower species diversity than fresh marsh, but may have higher productivity. This habitat provides important nurseries for brown shrimp, white shrimp, blue crab, and Gulf menhaden or pogey. Soils may be very poor due to very high organic content. Submerged aquatic vegetation within lakes and bays are vital to secondary productivity.
Brackish Marsh	4–18	Brackish marsh has the lowest plant diversity, but may be the most productive type of marsh. The dominant species is marshhay grass. Oysters are exceptionally significant due to filtration, biomass, reef building, and commercial harvest and other fish found in reef communities.
Salt Marsh and Barrier Islands	8–29	Salt Marsh and barrier islands have high overall species diversity due to plants and animals. Bird rookeries are an important use of these habitat types. Nesting for sea turtles occurs on some islands. Some islands in the study area also have true seagrasses on their bay side lagoons and provide habitat for the endangered West Indian manatee during migration.

2010 FEASIBILITY REPORT at 2-16–17 (December 2010 Army Corps MRGO Ecosystem Restoration Plan).

²⁷ A salinity score of 0 indicates undetectable levels of saline in the water; seawater has a saline score of around 35. *See Background Papers & Supporting Data on the Practical Salinity Scale 1978*, 37 UNESCO TECHNICAL PAPERS IN MARINE SCI. 5–7 (1981), available at <http://unesdoc.unesco.org/images/0004/000479/047932eb.pdf>.

Freshwater swamps can support cypress and tupelo forests that are important for protecting areas from wind and surge. 2010 FEASIBILITY REPORT at 1-7. As salinity increases, however, taller cypress and tupelo die off. 2010 FEASIBILITY REPORT at 2-16. In fact, rapid shifts in salinity risk destroying vegetation altogether, leaving bare land that quickly can convert to water. 2010 FEASIBILITY REPORT at 2-42.

Prior to 1978, saline marsh was found only south of the Bayou La Loutre Ridge and in the outer Biloxi Marshes. 2008 ARMY CORPS REPORT at xiv. By 1990, however, estimated wetland loss in Region 1 of the Coastal Louisiana Hydrologic Basin Area, *i.e.*, St. Bernard Parish, Orleans Parish, and St. Charles Parish, was reported to be 74,800 acres or an average of 1,290 acres per year between 1932 and 1990. Pls. 2/9/09 S.J. Ex. 6 at 4 (LA. DEP'T OF NATURAL RES., COASTAL RESTORATION DIV. ANNUAL PROJ. REVIEW (Dec. 2001)); *see also* at xiv (“Between 1956 and 1990, 68,600 acres of wetlands were lost [as a result of] subsidence, navigational channels, oil and gas exploration and production, development and storms. . . . Approximately 67 percent of the swamp . . . was lost while saline marsh gained 8 percent.”).

By 1984, the Army Corps recognized that:

[c]onstruction of the MR-GO has accelerated the natural changes occurring in the St. Bernard Parish wetlands near Lake Borgne. . . . Wind-and-wave generated erosion is also steadily widening the MR-GO. Because of this expansion, the east bank along Lake Borgne is dangerously close to being breached. Once the [east] bank [along Lake Borgne] is breached, development to the southwest would be exposed to direct hurricane attacks from Lake Borgne, the rich habitat around the area would be converted to open water, and more marsh would be exposed to the higher salinity water.

RPX1639 at 7 (U.S. ARMY CORPS OF ENG'RS, LA. COASTAL AREA: SHORE & BARRIER ISLAND EROSION (1984)).

Between 1998 and 1999, saline marsh in the New Orleans area “encroached” up the MR-GO to about the Bayou Dupre and into the Biloxi Marshes near the MR-GO, past Bayou Dupre. 2008 ARMY CORPS REPORT at xiv.

By 1999, the Army Corps stated that “[e]stimated habitat shifts caused by saline waters brought in by the MRGO are believed to have caused 3,350 acres of fresh/intermediate marsh and 8,000 acres of swamp to convert to brackish marsh and 19,170 acres of brackish marsh and swamp to convert to saline marsh in areas adjacent to MRGO.” 2010 DRAFT EIS App’x E at 2 (citing “USACE, 1999”); *see also* SPX.0773 at 52 (U.S. ARMY CORPS TECHNICAL COMM., HABITAT IMPACTS OF THE CONSTRUCTION OF THE MRGO (1999)); SPX.01146 at 1-9 (U.S. ARMY CORPS OF ENG'GS & LA. DEP'T OF NATURAL RES. PROJECT MGMT. PLAN: MISS. RIVER GULF OUTLET (MRGO) ENVTL. RESTORATION PHASE II, FEASIBILITY STUDY (2005)); 12/14/11 TR 953 (Britsch) (“I do agree there was a lot of habitat conversion due to salinity.”).

On October 20, 2000, the EPA published a “Status Report: Comprehensive Plan for Timely Modification of the Mississippi River Outlet” that summarized the situation:

The construction, operation and maintenance of the MRGO have caused substantial environmental changes in the Pontchartrain and Breton Sound drainage basins of southeastern Louisiana east of the Mississippi River. The channel has *breached major hydrologic boundaries* and has extended marine conditions into formerly fresh, low energy swamp, marsh and lacustrine areas. More than 65,000 acres of natural habitat have been lost or modified as a result of the MRGO[.]

2000 EPA REPORT at 2-1 (emphasis added).

A 2010 Army Corps study enumerated the “direct and indirect effects” caused by the MRGO as: “land loss, bank/shoreline erosion, habitat change and loss, modification of natural hydrology, retreating and eroding barrier islands, ridge habitat degradation and destruction, . . . and increased susceptibility to storm surge[.]” 2010 DRAFT EIS App’x E at 2.

At trial, Dr. Kemp testified that the construction, expansion, operation, and failure to maintain the MR-GO was responsible for most of the land/habitat loss in the area. 12/13/11 TR 500 (Kemp) (“The salinity increase [due to MR-GO] was what set in motion the habitat change and much of the loss that occurred.”).

Several of Plaintiffs’ witnesses also testified about the habitat changes that occurred after the MR-GO was constructed and described the shift from freshwater wetland forests to brackish forests and open water. Forested areas along Shell Beach, Hopedale and Yscloskey “died away pretty quickly.” 12/12/11 TR 89 (Estopinal). In the 1950s, Paris Road (Highway 47), in the Bayou Bienvenue area, had “scrub oaks, and some trees, and a lot of roseau, which is the local bamboo cane . . . and had a lot of trees and brush.” 12/12/11 TR 80 (Estopinal). Trees also disappeared, replaced with open water along Bayou Bienvenue. 12/12/11 TR 89 (Estopinal). These changes occurred “over the several decades,” after the construction of the MR-GO. 12/12/11 TR 91 (Estopinal). For example, Mr. Robin testified that, as a child, he saw oak trees and cypress trees at the Shell Beach area, but now there are few oak trees and only dead cypress trees. 12/13/11 TR 611–12 (Robin). Mr. Robin last saw live cypress trees in the early 1970s. 12/13/11 TR 640 (Robin). The marshes near Hopedale and along MR-GO used to have cypress swamps, but no longer have living cypress trees. 12/14/11 TR 845–46 (Wilhoft). Bayou Bienvenue used to have vegetation but now is “[m]ostly water. Even the marshes [are] pretty much disappearing now.” 12/14/11 TR 846 (Wilhoft).

[T]here [are] no more [cypress] trees. It’s just all marsh grass and water all the way up to the bridge, which would be over the Industrial MRGO, and coming from the south side coming in south that’s all you see is water, and on the west side and east side all you see is water now, too.

12/12/11 TR 183 (Tommaseo).

Mr. Estopinal also recalled that Shell Beach, which fronted the Lake Borgne, was a beach he could swim in as a child, but today that area is gone. 12/21/11 TR at 78–80

(Estopinal). The Government argues that despite this evidence Plaintiffs failed to establish the causal link between habitat/wetlands loss and flooding on their properties within the federal levee system. 4/13/12 Gov't Br. 66; 5/18/12 Gov't Resp. 21 (citing 12/12/11 TR 292–95 (Kemp) (testifying that the role of wetlands in presenting storm surge varies between storms and has not been widely studied)). The Government also faults Plaintiffs habitat/wetland loss causation analysis outside the levee system, because Dr. Kemp failed to quantify the MR-GO's contribution to physical changes seen in Bayou Yscloskey. Gov't 4/13/12 Br. 68 (citing 12/13/11 TR 443–45, 47 (Kemp) (noting that Dr. Kemp had not examined historic maps, aerial photographs, or gauge readings to determine if Bayou Yscloskey had changed after the construction of the MR-GO)). In addition, the only information related to wetlands impact that Dr. Kemp considered was a study of wetlands during Hurricane Rita, but that area consisted of twenty-five miles of marsh with no levees. Gov't 5/18/12 Resp. 21 (citing 12/13/11 TR 437 (Kemp)).

The Government's expert, Dr. Britsch, however states that “the loss of land . . . in the St. Bernard Delta . . . has the potential effect of increasing the connectivity and water exchanges between large water bodies and the interior marshes resulting in changes in tides, and incursions of marine water further inland.” 12/8/11 Britsch Direct at 24. Dr. Britsch also allowed that “MRGO was one of many things that increased the connectivity between large water bodies and the interior marshes.” 12/14/11 TR 902–03 (Britsch). Dr. Britsch agreed “[the MR-GO] did do a lot of habitat type change. But I think the changes were more conversion of habitat types rather than conversion of land to water.” 12/14/11 TR 995 (Britsch).

Dr. Britsch, however, testified that the MR-GO directly caused 7,087 acres of land loss out of a total of 103,870 acres in the St. Bernard Delta, but concluded that the portion of the loss attributable to the MR-GO is “small.” 12/8/11 Britsch Direct 20; *see also* 12/14/11 TR 910 (Britsch). There are several problems with Dr. Britsch's conclusion. First, his study included 21,909 acres lost prior to the construction of the MR-GO in 1958, diluting the actual effect of the MR-GO. 12/14/11 TR 913 (Britsch). Second, his testimony in this case is inconsistent with his prior expert report in *Robinson* that considered a smaller study area. RJX 202 at 17 (studying approximately 113,643 acres and acknowledging that the MR-GO is one factor in changing land area and habitat). Third, Dr. Britsch accounted only for land lost in the MR-GO due to dredging and erosion; he did not consider land loss caused by destruction of wetlands by saltwater intrusion. 12/14/11 TR 909, 943–44 (Britsch). Fourth, Dr. Britsch also did not adequately explain how long-term factors, such as natural subsidence, contributed to the short-term land loss seen around Lake Borgne. *Compare* 12/8/11 Britsch Direct at 9–11, *with* 1972 BASELINE STUDY at 66–67 (1972 Coastal Environments, Inc. Envtl. Baseline Study) (noting that natural subsidence causes habitat destruction “over a long time span” and as such, “is probably only of secondary importance in accounting for the very rapid decay of the fresh swamp” near Lake Borgne). Finally, Dr. Britsch's testimony is contradicted by the Army Corps' land loss estimates and the 2010 MRGO Ecosystem Restoration Study Draft Environmental Impact Statement, to which Dr. Britsch was a contributor. *Compare* 2010 FEASIBILITY REPORT at 1-16, *with* SPX.0773 at 52 *and* 2010 DRAFT EIS at 1-7.

Given the conflicts between Dr. Kemp's and Dr. Britsch's testimony, the court has decided to rely on Army Corps documents and the testimony of Plaintiffs' witnesses as they are the most relevant evidence about the role of the MR-GO in increasing habitat and wetland loss in the St. Bernard Polder.

For these reasons, the court has determined that Plaintiffs established a causal link between the Army Corps' construction, expansions, operation, and failure to maintain the MR-GO and increased habitat and wetland loss in the St. Bernard Polder.

c. Because Of Increased Erosion.

In July 1957, the Army Corps finalized a Design Memorandum for the MR-GO that stated:

No channel protection is recommended initially, however, *erosion due to wave wash in open areas can be expected* in the upper part of the channel slope where the peat and highly organic clays are exposed. Protection for this area can be provided if and when the need for it becomes necessary.

SPX.0213 at 7.

By November 8, 1983, the Chief of the Hydraulics & Hydrologic Branch of the Army Corps warned, "Future widening or erosion of [the MR-GO] could cause erosion of the hurricane levee berm[.]" SPX.0241.

In 1988, the Army Corps estimated that MRGO expanded from a top width of 650 feet in 1968 to 1,500 feet by 1987. RPX0009 (U.S. ARMY CORPS OF ENG'RS, MISS. RIVER-GULF OUTLET ST. BERNARD PARISH, LA. BANK EROSION RECONNAISSANCE REPORT (February 1988)). It is significant that at this early date, the Army Corps recognized that:

[t]he alternative to completely close the MRGO waterway should be evaluated and a discussion of the evaluation should be included in the [Reconnaissance] report. The closure should be located in the vicinity of mile 23 [south of Bayou La Loutre Ridge] and . . . will control all future channel maintenance problems by controlling bank erosion, prevent[] the associated biological resources problems, prevent[] saltwater intrusion, and lessen[] the recreational losses. . . . [I]t will also reduce the possibility of catastrophic damage to urban areas by a hurricane surge coming up this waterway[.]

RPX0009 at 1 (PDF at 10).

In a May 30, 1991 Memorandum, the Army Corps restated its "long standing policy against repairing bank erosion." RPX2082 at 2; *see also* SPX.0241 (In 1983, the Army Corps decided to defer "erosion protection to allow for future widening" of MR-GO). The Army Corps also concluded that bank stabilization for MR-GO was not worthwhile, because the "[l]ong term viability of MRGO [was] in question due to considerable public opposition to past and continuing (perceived and real) environmental damages and to [the] marginal competitiveness of [a] 36 ft channel." RPX 2082 at 2.

In July 2003, an independent study by two members of the Tulane University College of Engineering observed:

Severe erosion occurs from vessel wakes, and materials liberated in the process migrate into the waterway. MRGO bank erosion has historically and is currently

occurring at high rates, mainly due to ship wave impact. An analysis of bankline retreat from 1964 to 1996 shows that the banks are being lost at about 12 to 26 ft/yr. . . . Bank erosion results in channel shoaling, which requires periodic maintenance dredging. The current scenario is largely unsustainable from the engineering, environmental, and economic perspectives.

RJX-0243 at 3.

In 2004, prior to Hurricane Katrina, the Army Corps recognized that bank erosion of the MR-GO “is an ongoing problem, widely recognized by the Corps, other agencies, state and local governments, as well as the general public.” RPX0716 at 5 (estimating annual erosion of fifteen feet along the south bank and thirty-two feet along the north bank); RJX-0243 at 3 (estimating bank erosion at twelve to twenty-six feet per year). Between 1961 and 2005, the Lake Borgne shoreline retreated around 235 feet. 12/6/11 Kemp Direct at 236–37. And, a September 2005 Army Corps “reevaluation study,” dated days after Hurricane Katrina’s landfall “documented the retreat of the unstable MRGO Reach 2 channel banks.” 12/6/11 Kemp Direct at 56 (citing SPX.0298).

As a result of the increased erosion, the MR-GO allowed Bayou Yscloskey “to carry significantly more water at higher velocities.” 12/6/11 Kemp Direct at 238.

[T]he hydraulic connection between the Lake and the settlements along the banks of Bayou Yscloskey was undoubtedly made larger and more efficient, allowing it to serve as a more open route not only for surge during storms but also for water level fluctuations in the Lake during less extreme wind events. The enlargement of the hydraulic connection between Bayou Yscloskey and Lake Borgne was enhanced by dredging of the MRGO.

12/6/11 Kemp Direct at 238; *see also* 2006 WESTERINK NOTE at 2–3 (stating that the combination of erosion resulting from the Army Corps’ authorized expansions and continued ship wave erosion played an “important role in the propagation of the astronomical tide wave and in the flux of more saline water from Lake Borgne/Brenton Sound into Lake Pontchartrain via the [INHC]”).

On December 9, 2010, after Hurricane Katrina, the Army Corps issued a draft Environmental Impact Statement concluding that:

The construction, operation, and maintenance of the MRGO caused the loss of approximately 24,610 acres and indirectly to an additional loss of 33,920 acres. Approximately 63,178 acres of land is estimated to have been lost in the study area from 1985 through 2010. Approximately 131,091 acres are projected to be lost between 2010 and 2065 within the study area.

2010 DRAFT EIS at 1-16 (internal citations omitted); *see also* 2010 FEASIBILITY REPORT at 1-7 (estimating that the “MR-GO channel construction, including the dredging of the canal and placement of dredged spoil, resulted in the conversion of 19,400 acres of wetlands and 4,750 acres of shallow open water to deep open water or spoil”).

In sum,

[t]he channelized nature of the MRGO induce[d] large ship waves during vessel passage. Ship waves strike the bank lines, which consist of very soft organic soils. Severe erosion occurs from these vessel wakes [As such, the] MRGO bank erosion has historically and is currently occurring at high rates, mainly due to ship wave impact.

RJX-0243 at 3 (EDMOND J. RUSSO, JR., EVALUATION OF BANK LINE REVETMENT ALTERNATIVES TO ABATE SHIP WAKE EROSION, MISS. RIVER – GULF OUTLET, LA. (July 2003)); 12/12/11 TR 83 (Estopinal) (testifying about the waves generated from ships passing through the MR-GO); 12/13/11 TR 602 (Robin) (“[T]he ships would come in and they would be sucking so much water that it . . . would take the water away from the shores, and . . . all of a sudden there’s no water and their [small sport or recreation] boats will have accidents, either turn over or sink.”)); 12/13/11 TR 839–40 (Willhoft) (testifying how, as a ship operator, he observed the erosive waves generated by ship wake).

A July 21, 2006 Report co-authored by the Army Corps reflected that the authorized bottom width of the MR-GO was 400–450 feet. 2006 WESTERINK NOTE at 2; *see also* RDX1042 at 4 (June 1959 Army Corps Design Memorandum No. 2) (revising the MR-GO’s authorized dimensions from 36 feet by 500 feet to 38 feet by 600 feet). Because of erosion of the MR-GO due to ship traffic and the failure of the Army Corps to maintain the banks, the width of the MR-GO was approximately 3,000 feet at its widest point. The significance of this expansion is that the “[r]etreat of the south bank [of the MR-GO] affected the severity of wave attack on the Chalmette levee.” 12/6/11 Kemp Direct at 28; 12/13/11 TR 426 (Kemp); *see also* 12/6/11 Kemp Direct at 30–32 (figures 2.6a–d) (showing the increased widening of the MR-GO over time).²⁸

For these reasons, the court has determined that Plaintiffs established that the construction, expansions, operation, and failure to maintain the MR-GO caused increased erosion in the MR-GO.

d. Because Of Increased Storm Surge.

Wetlands play a critical role in reducing the impact of hurricanes and severe storms:

When storms move over open water, there is nothing to slow the wind and wave action. This creates a storm surge—a gigantic wall of water pushed forward by the

²⁸ In 2008, the Army Corps stated that as a result of subsequent “tropical storms and hurricanes, supplemental expenditures have often been required to return the MRGO to the authorized dimensions.” *See* 2008 ARMY CORPS REPORT at vi-vii. Since 1998, however, no funds have been spent to restore the MR-GO to its authorized dimensions. *Id.* at vii. In addition, the GIWW Reach has not been dredged since 1998. *Id.* The Inland Reach, however, was maintained at a minimum 300-foot bottom width until 2005; the Sound Reach was maintained to a minimum 450-foot bottom width; and the Bar Channel to a minimum 500-foot bottom reach. *Id.* After Hurricane Katrina in 2005, there was no channel maintenance. *Id.*

storm's winds. The vegetation of the wetlands helps minimize the storm surge. When powerful waves from a hurricane crash into the land, wetland plants act as brakes, slowing down the waves and reducing their destructive power. For every 3 miles of marsh, the storm surge of a hurricane is reduced in height by 1 foot[.]

AUDUBON EDUCATOR'S GUIDE 3; *see also* SPX.0180 at 4-44 (U.S. ARMY CORPS OF ENG'RS, FINAL ENVTL. IMPACT STATEMENT FOR THE MISS. RIVER-GULF OUTLET (MRGO), LA., & LAKE BORGNE—WETLAND CREATION & SHORELINE PROT. PROJ. (2009) (“Protecting wetlands (preventing their loss) has a net effect of lowering storm surge and wave heights[.]”); 12/12/11 TR 290 (Kemp) (In 1965, the Army Corps estimated that storm surge is reduced by one foot for every 2.75 miles of wetland.).

According to a Louisiana State University report, “an area about the size of a football field with the tree density equal to that also in most Louisiana swamps would reduce wave energy in a storm by 90 percent.” SPX.0692 at 122–23 (S. Rep. 109-322, 109th Cong. 2d sess. (2006)); 12/12/11 TR 292–93 (Kemp) (testifying that “cypress trees [provide protection from wind surge], because they don’t allow the wind to reach the water. The[] wind hits the top of the cypress trees and the cypress trees don’t care. [But, if the wind goes] down to the water[,] then it would start to build wind surge.”).²⁹

In other words, habitat and wetlands are “horizontal levees” that absorb surge and dissipate storm energy.

[The wetlands] are much rougher than a channel, and so they retard the advance of the surge. So it builds up at a slower rate. Remember a surge is always a race against time because the hurricane is not stopping, it keeps going, and so the surge builds up and then it drops. And if you can slow it down enough you just don’t build it up the same way.

12/12/11 TR 289 (Kemp); *see also* 12/8/11 Britsch Direct 24 (“In general, land areas serve as storm buffers and influence the hydrology. Accordingly, the loss of land we have been discussing in the St. Bernard Delta, and elsewhere in coastal Louisiana has the potential effect of increasing the connectivity and water exchange between large waterbodies and the interior marshes resulting in changes in tides, and incursions of marine water further inland.”); 12/12/11 TR 290 (Kemp) (In 1965, the Army Corps estimated that storm surge is reduced by one foot for every 2.75 miles of wetland.); RPX1332 (U.S. ARMY COASTAL ENG’G RESEARCH CTR., SHORE PROT. MANUAL, Vol. I at I-9 (1975)) (“The height of storm surge depends on wind velocity and direction, fetch, water depth, and nearshore slope.”).

One of the first academic studies to recognize the potential of increased storm surge from the construction and early expansions of the MR-GO was conducted in October 1972 and warned that, since “[t]he build up of tides in naturally constricted estuaries is a well known phenomenon,”

²⁹ On April 9, 2008, the Army Corps arranged an aerial tour of the St. Bernard Polder for the court and the parties. During this tour, the court observed miles of dead cypress trees and the proximity of habitat loss to the MR-GO.

the Army Corps should “re-evaluat[e the] . . . hurricane storm surge threat in the funnel formed by the MRGO and the GIWW and associated hurricane protection levees.” SPX.0705 at 54 (ENVTL. IMPACT STUDY, SHIP CHANNEL PROJ. (1972)).

To remedy this situation, the Coast 2050 Report recommended implementation of seventeen specific “Regional Ecosystem Strategies,” including closing the MR-GO to deep-draft navigation:

The MRGO is perceived as a major problem in the Pontchartrain Basin. Wave erosion causes a 15-foot per year loss along 37 miles of the north bank. When the MRGO was completed in the 1960’s salinity increased in the basin, causing massive environmental damage. . . . *The north bank of the MRGO should be stabilized as soon as possible*[, i.e., by 2003 at the latest.]

COAST 2050 REPORT at 88–90 (emphasis added); COAST 2050 REPORT at 88, 90. In addition, within the “Long Term (16–50 years),” the Coast 2050 Report recommended that the MR-GO be closed to deep-draft navigation. COAST 2050 REPORT at 90. Of course, that did not happen until six years later—after Hurricane Katrina, followed by Rita, Gustav, and Ike.

And, in 2000, the EPA expressed great concern about the MR-GO’s

potential role in creating an avenue for surge movement during storms; erosion of the wetlands that provide an apron benefitting flood protection levees; erosion caused by ships that commonly exceed unenforced speed limits and or that exceed depth limits; and breach of wetlands that buffer large lakes from the channel.

2000 EPA REPORT at 2-1–2 (emphasis added).

On June 23, 2005, a draft MR-GO Critical Shoreline Protection Feasibility Study stated, “Changes in salinity and water circulation . . . caused by the MRGO have increased the rate of wetlands loss in the area, and these changes to geomorphic structure in this part of the Deltaic Plain would increase the storm surge of hurricanes and tropical storms that impact this area[.]”. 2005 ARMY CORPS DRAFT STUDY at 1-15.

Dr. Britsch concluded that waters from the Gulf of Mexico in the southeast, not the MR-GO in the northeast, governs the hydrology of the area, and therefore the MR-GO was not a substantial cause of flooding. 12/14/11 TR 984–87 (Britsch).³⁰ The testimony of Mr. Robin,

³⁰ In response to Plaintiffs’ criticism of Dr. Britsch’s study, the Government notes that “Dr. Britsch appropriately tailored his report in this case to the specific location of Plaintiffs’ properties and in a manner that makes his analysis relevant to the facts and legal questions this case presents—something the Plaintiffs’ experts did not do.” Gov’t 5/18/12 Resp. 41 (citing 12/13/11 TR 920–21 (Britsch) (explaining that he adjusted the study parameters from *Robinson* to accommodate the different locations of properties at issue in this case) (emphasis omitted)).

explaining that flooding on his property occurred when wind originated in the southeast, is also consistent with this point. 12/13/11 TR 647, 654 (Robin); 8/24/07 Robin Dep. 90.³¹

But, the March 26, 2007 Army Corps IPE Report directly contradicted Mr. Britsch and concluded that within the levee system in New Orleans East:

[T]he dominant source of water appears to be from the overtopping and breaching of the levee system along the GIWW between the IHNC and the confluence with the MRGO. It appears that this overtopping occurred earlier on Monday morning by about 1100 UTC (6:00 a.m. CDT) or possibly earlier. These floodwaters moved both north and east, eventually merging with the floodwaters coming from the overtopping and breaching of the GIWW Levees to the east of the MRGO confluence.

SPX.0004 at IV-193 (emphasis added); *see also* SPX.0004 at IV-194 (stating that the flooding in St. Bernard Parish and the Lower Ninth Ward came from two breaches along the IHNC, overtopping, and numerous breaches along the GIWW and the MR-GO); *see also* 12/6/11 Kemp Direct at 36 (identifying breach locations).

A 2010 Army Corps draft environmental impact statement also reported that:

Construction and maintenance of the MRGO caused widespread wetland loss and damages to estuarine habitats from the outer marshes in Breton Sound to the swamps and tidal fresh marsh in the western reaches of the Lake Borgne basin. Land loss, bank/shoreline erosion, habitat change and loss, modification of natural hydrology, retreating and eroding barrier islands, ridge habitat degradation and destruction, invasive species introduction and spread, marsh herbivory, and increased susceptibility to storm surge are some of the direct and indirect effects the MRGO channel has caused.

2010 DRAFT EIS App'x E at 2 (emphasis added); *see also* 2010 FEASIBILITY REPORT at 1-7 (“Construction and operation of the MRGO contributed to wetland loss and damages to estuarine habitats in Louisiana from the outer tidal marshes in Breton Sound to the cypress forest and fresh ma[r]shes in the western reaches of the Lake Borgne basin. Loss of marsh and cypress swamp habitats has resulted in the decline of important ecological habitat as well as natural surge and wave buffers.”).

Dr. Kemp testified that the MR-GO strengthened the hydrological connection between the Gulf and Lake Borgne. 12/6/11 Kemp Direct at 236–38. This allowed storm surge to increase substantially during Hurricane Katrina, severing the natural bridge between the MR-GO and Lake Borgne. 12/6/11 Kemp Direct at 235–40. As a result, storm surge traversed up Lake Borgne without any barrier into Bayou Yscloskey. 12/6/11 Kemp Direct at 235–40.

³¹ The Government clarified, however, that although Mr. Robin used the word “northeast” wind during his deposition, he meant a wind moving northwest, originating from the southeast. Gov’t 4/13/12 Br. 73 (citing 12/13/11 TR 647, 654–55 (Robin)).

The altered Bayou Yscloskey and other minor streams in the area created “much more active tidal pass[es]” that expanded to become capable of conveying larger volumes of water. 12/6/11 Kemp Direct at 238. This increased storm surge caused flooding of Plaintiffs’ properties outside the levees after Hurricane Katrina. 12/6/11 Kemp Direct at 236–38 (“The enlargement of the hydraulic connection between Bayou Yscloskey and Lake Borgne was enhanced by the dredging of the MRGO.”); *see also* 2010 DRAFT EIS at 2-50 (“The spatial integrity of the MRGO/Lake Borgne Landbridge was compromised by the construction of the channel.”).

Dr. Kemp attributed the flooding of Plaintiffs’ properties within the levee system primarily to storm surge caused by the MR-GO:

St. Bernard has some of the highest land on the east bank of New Orleans, following as it does the natural levee of the Mississippi River and some of its abandoned distributaries. . . . Despite being relatively high by local standards, the St. Bernard polder experienced the most violent, spatially expansive and deepest flooding in the entire metro area during the Katrina event. . . . Except for a limited contribution from rainfall, all flooding of the St. Bernard polder was caused by water that passed through or across one or more reaches of the MRGO.

12/6/11 Kemp Direct at 36 (figures omitted).

For these reasons, the court has determined that Plaintiffs established the construction, expansions, operation, and failure to maintain the MR-GO caused substantially increased storm surge during Hurricane Katrina and subsequent hurricanes and severe storms.

e. Because Of The “Funnel Effect.”

As reflected in a 2006 Senate Report, “Prior to Hurricane Katrina, many warned that the potential funnel [created by the MR-GO] would accelerate and intensify storm surges emerging from Lake Borgne and the Gulf into the downtown New Orleans area. The funnel had been described as a superhighway for storm surges or the Crescent City’s Trojan Horse that had the potential to amplify storm surges by 20 to 40 percent[.]” SPX.0692 at 124 (S. Rep. No. 109-332 (2006) (internal quotation marks omitted)).

A “funnel effect” occurs when channels and levees compress the storm surge into an increasingly confined space, causing it to rise faster and higher. 12/6/11 Kemp Direct at 184; *see also Robinson* 4/21/09 TR 380 (FitzGerald) (describing the funnel effect). Several of the Government’s documents also discuss this phenomenon. SPX.0167 at 52 (2008 U.S. ARMY CORPS OF ENG’RS, DRAFT INDIVIDUAL ENVTL. REPORT: IMPROVED PROT. ON THE INNER HARBOR NAVIGATION CANAL (“2008 DRAFT ENVTL. REPORT”) (“[S]urge height increases as it moves from east to west in the Borgne complex, due to the narrowing of the corridor between the GIWW and the MRGO as it approaches the IHNC.”)); SPX.0692 at 123–24 (S. Rep. 109-322, 109th Cong. 2d sess. (2006) (“The MRGO also contributed to a potential ‘funnel’ for storm surge emerging from Lake Borgne and the Gulf into the New Orleans area. . . . The funnel has been described as a ‘superhighway’ for storm surges . . . that had the potential to ‘amplify storm surges by 20 to 40 percent,’ according to some surge modeling.”)). During Hurricane Katrina, the MR-GO funneled

water westward, substantially increasing storm surge to higher elevations. 12/6/11 Kemp Direct at 28–30, 72–73.

As part of the new HSDRRS, the Army Corps constructed a surge barrier to close off the mouth of the funnel to protect the most populated parts of the St. Bernard Polder from MRGO-related storm surge attributable to the funnel effect. 12/14/11 TR 871–73 (Park). This closure was done to “reduce the possibility of catastrophic damage to urban areas by a hurricane surge coming up this waterway[.]” RPX0009 at PDF 10 (U.S. ARMY CORPS OF ENG’RS, MISS. RIVER-GULF OUTLET ST. BERNARD PARISH, LA., BANK EROSION, RECONNAISSANCE REPORT (1988)).

The Government’s position that the funnel was “natural” and pre-dated the MR-GO was contradicted by an August 2008 Army Corps draft environmental report acknowledging the MR-GO’s funnel effect, stating that “[s]urge modeling and flood risk assessment . . . demonstrates that surge height increases as it moves from east to west in the Borgne complex, due to the narrowing of the corridor between the GIWW and the MRGO as it approaches the IHNC.” 2008 DRAFT ENVTL. REPORT at 52. That report also reflects a considerable amount of supporting evidence in this record.

As Plaintiffs’ expert testified³²:

The GIWW and the MR-GO Reach 2 form a triangle that opens to the east to Lake Borgne and from there to the Mississippi Sands at the Gulf of Mexico. . . . This layout has been described as a “funnel” . . . [that is] dominated by Lake Borgne, a very large, shallow lake similar to Lake Pontchartrain that is elongated along a southwest to northwest axis, providing more than 40 miles of open water in this direction. Forty miles of open water is a very long “fetch” over which hurricane winds can build surge and waves. Any hurricane generating winds from the north, northeast or east will cause a buildup of surge[.]

12/6/11 Kemp Direct at 32 (figures omitted).

³² For Plaintiffs’ properties outside the federal levee system, the Government incorrectly states that lay evidence is entitled to little or no weight. Gov’t 4/13/12 Br. 39–40. Plaintiffs are not relying solely on lay witnesses, but also expert testimony and documents, to demonstrate that the Army Corps’ construction, expansion, operation, and failure to maintain the MR-GO injured Plaintiffs’ properties outside the federal levees.

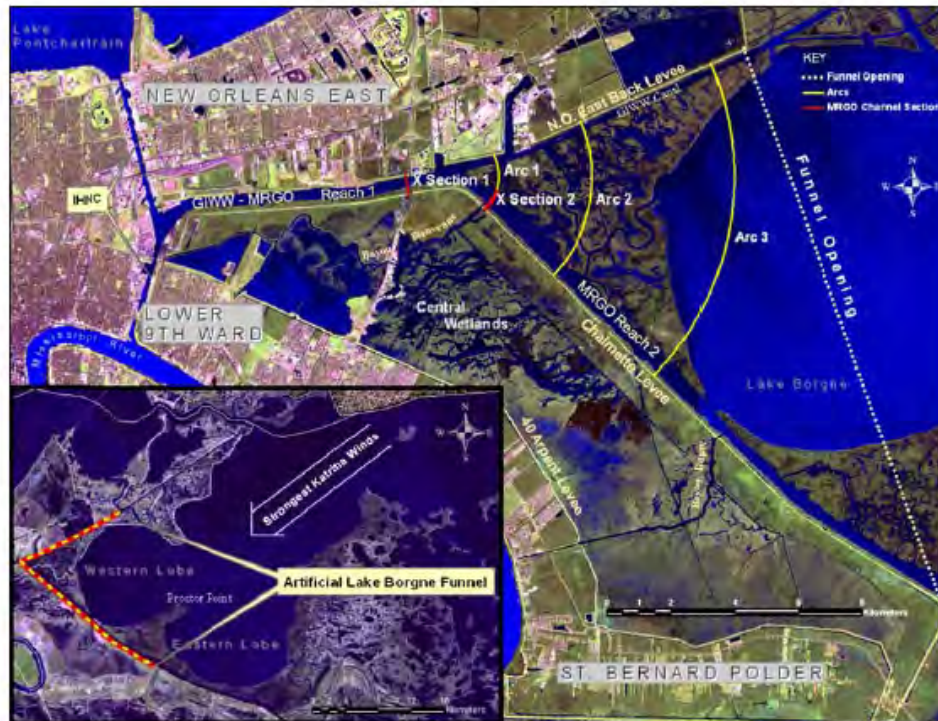


Figure 6.9. MRGO Funnel showing reach locations, arcs and cross-sections used in the surge analysis.

12/6/11 Kemp Direct at 137 (Tbl. 6.9).

In 2006, the Senate Committee on Homeland Security and Governmental Affairs issued a Special Report on Hurricane Katrina that made the following findings about the funnel effect of the MR-GO:

The “funnel” was created by the intersection of the MRGO from the southeast and the GIWW from the northeast into the confined channel, referred to as the GIWW/MRGO[,] that separates New Orleans East and the Ninth Ward/St. Bernard Parish. The levees on the south side of the MRGO and the levees on the north side of the GIWW converge from being about 10 miles apart where they straddle Lake Borgne to a few hundred yards apart where the MRGO merges into the GIWW. The western part of the “funnel” is a six-mile-long section of the combined GIWW/MRGO, which was enlarged by a factor of three when the MRGO was built in order to expand it from a barge channel to accommodate ocean-going vessels.

Prior to Hurricane Katrina, many warned that the potential funnel would accelerate and intensify storm surges emerging from Lake Borgne and the Gulf into the downtown New Orleans area. The funnel had been described as a “superhighway” for storm surges or the “Crescent City’s Trojan Horse” that had the potential to “amplify storm surges by 20 to 40 percent,” according to some storm modeling. 33 Researchers at LSU believed that in creating this funnel, “the US Army Corps of Engineers had inadvertently designed an excellent storm surge delivery system—

nothing less—to bring this mass of water with simply tremendous ‘load’—potential energy—right into the middle of New Orleans.”

The extent to which MRGO, and the funnel it helped create actually contributed to the hurricane’s damage is still being investigated, but there have been some preliminary findings. A recent report issued by the Corps’ IPET concluded that the portion of MRGO running from the GIWW to the Gulf (called “Reach 2”) did not significantly impact the height of Katrina’s storm surge, not because the “funnel” effect was nonexistent, but because the storm was so great it nullified the impact of either the wetlands or the intersection of the MRGO and the GIWW—the funnel—at the height of the surge.

While the IPET report concluded that the Reach 2 portion of MRGO had little impact on Katrina’s storm surge, it did find that the six-mile combined section of the GIWW/MRGO (called “Reach 1”) carried the storm surge from Lake Borgne into New Orleans. The combined GIWW/MRGO served as a link between Lake Borgne and Lake Pontchartrain, enabling the storm surge in one lake to affect the storm surge in the other. During Katrina, a 14 to 17-foot surge coming from Lake Borgne into the funnel between MRGO and the GIWW was as much as 10 feet above water levels in Lake Pontchartrain. This large difference in the water levels between the two lakes increased the flow of water in the direction of the city and eventually into Lake Pontchartrain.

To address this problem, the IPET report recommended that flow through the combined channels “must be dramatically reduced or eliminated,” either by a permanent closure or a structure that can be selectively used to block storm surges flowing between Lakes Pontchartrain and Borgne along the combined GIWW/MRGO.

Researchers at the LSU Hurricane Center who have looked at models of Katrina have concluded that it is not just the volume of water that is important, but also the velocity. These researchers found that the funnel accelerated the speed of the water when the larger volume in the funnel, and especially the water in the MRGO, was forced into the single merged GIWW/MRGO channel. The increased velocity of the water as it made its way through the channel pounded on the floodwalls lining the sides, weakening them and making them more vulnerable to the overtopping and scouring that occurred during the storm. Maximum current velocities in the combined GIWW/MRGO channel were greater than eight feet per second, which is nearly three times the velocity necessary to cause serious potential for erosion in the soils of the adjacent levee.

Investigations continue into MRGO’s contribution to damage caused by Katrina, but there is general agreement that the presence of the MRGO destroyed wetlands that otherwise would have provided additional defenses. This happened because the MRGO served as a conduit for saltwater from the Gulf of Mexico to intrude into the freshwater wetlands. The saltwater damaged and destroyed wetlands, which resulted in the loss of land that had served as part of the city’s defenses

against hurricanes and other storms. According to the National Academy of Sciences, MRGO has resulted in “tremendous environmental damage, including saltwater intrusion, land loss, and worsening the effects of wave damage during hurricanes and storms.”

SPX.0692 at 123–24 (S. Rep. 109-322, 109th Cong. 2d sess. (2006)) (footnotes omitted); *see also* RPX1030 (depicting an alternative plan for the MR-GO that would have closed the funnel opening); 2008 DRAFT ENVTL. REPORT at 52 (acknowledging that the funnel effect); 12/6/11 Kemp Direct at 32–41.

In sum, as Dr. Kemp testified:

[T]he St. Bernard polder experienced the most violent, spatially expansive and deepest flooding in the entire metro area during the Katrina event. Except for a limited contribution from rainfall, all flooding of the St. Bernard polder was caused by water that passed through or across one or more reaches of the MRGO. This water entered the developed area as a result of catastrophic floodwall failures along the IHNC on the western margin, by overtopping of berms on MRGO Reach 1, and by flow through breaches in the Chalmette levee along Reach 2 of the MRGO. The interior 40 Arpent Levee was protected by over two miles of wetlands and was relatively undamaged, but it averaged only 6.5 feet high and was completely overtopped when floodwaters from the MRGO flowed through breaches to fill the Central Wetlands beyond this level.

* * *

[T]he maximum elevation of flooding experienced in each of the three east bank GNO polders during Katrina was quite different, reaching 10 to 12 feet above sea level in populated areas of the Lower [Ninth] Ward and St. Bernard Parish, but only a little over a foot above sea level in the much lower New Orleans East polder The average land elevations in each of the flooded polders also varied, ranging from nearly 6 feet below the NAVD88 datum (-7 feet relative to mean sea level) to +2.5 feet in St. Bernard In the Lower [Ninth] Ward and St. Bernard, 98 percent of all structures were seriously damaged by flooding. While the maximum elevation of water is important to property damage, the maximum rate of rise, estimated at 8 feet per hour in the Lower [Ninth] Ward . . . , was perhaps the most important factor contributing to greater loss of life there.

The difference among the polders in maximum flood elevation during Katrina was independent of the relative elevation of the land flooded, attaining its highest level in the St. Bernard Polder, which has the highest average land elevation of all of the GNO polders that flooded. The peak elevation that floodwaters attained in each of the GNO polders was governed by the time of flooding onset and the length of time during which water continued to flow in through breaches. The St. Bernard polder flooded to such a high elevation because the inundation started earlier in the surge sequence, while water in the MRGO was still rising. Because the onset of breaching and flooding was advanced by the presence of the MRGO navigation

project, it is apparent . . . that the MRGO project contributed substantially to the severity of flooding in the St. Bernard and other polders surrounding the Lake Borgne funnel.

All breaching of LPV structures, whether floodwalls or earthen berms, within the Lake Borgne funnel took place where these structures were inboard of, and in close proximity to the artificial channels. Except for the New Orleans East Back Levee inboard of the GIWW, all of the LPV structures that breached were adjacent to some part of the MRGO project, whether between the lock and the MRGO junction in the IHNC, along the north bank of MRGO Reach 1 or along the south side of MRGO Reach 2. Conversely, no LPV structures separated from artificial channels breached, even though many of them experienced overtopping. . . . [T]hat breaching was initiated by the excess stress applied to LPV structures as a result of proximity to deep channels, either by a surge that reached a higher elevation or lasted longer as in the IHNC, or, as along MRGO Reach 2 and the GIWW, by a higher intensity of wave attack than would have occurred if the channel were not there or farther away. The LPV and MRGO projects were never explicitly integrated with each other though they occupied the same landscape. In all of my work, I found no evidence that the MRGO project was ever modified to reduce the predictable excess surge stresses and wave attack caused by the encroachment of the channels on LPV structures, or, alternatively, that the LPV structures were bolstered in any way to withstand the obviously increasing threat.

Reduced to fundamentals, the extent of damage posed by the MRGO in each of these areas was affected, first, by the timing and duration of flooding during the storm, namely, whether flooding started early in the surge sequence or later. Because storm surge is a transient phenomenon, flooding that begins later, at or after the peak of the surge hydrograph, is not as great as flooding that begins earlier, while the surge is still rising. The Katrina storm surge rose first in Lake Borgne and later in Lake Pontchartrain, but it dropped from its peak everywhere at about the same time, as the storm completed its northerly traverse through the area, where both lakes are at similar latitude. Multiple features of the landscape affect the onset of surge at any given location, most notably proximity to large lakes and bays where surge is generated, as well as to large channels which preferentially convey it. The end of the surge event is, in contrast, determined rather simply by the speed of translation of the storm, which sets the schedule for reversal of the prevailing winds as it leaves the area.

Some LPV floodwalls and levees failed during the passage of Katrina, while others did not. The *Robinson* team showed that segments adjacent to the MRGO project, whether in the IHNC, or on MRGO Reaches 1 or 2, were exposed to greater stress—the effect of higher surge and/or more damaging waves—for a longer period than would have occurred during Katrina if the MRGO project had never been built and maintained in the manner that did not harm to the safety function of the LPV project . . . [T]his spelled the difference between survivable flooding caused by

overtopping and catastrophic flooding through breaches that occurred in many cases prior to overtopping.

12/6/11 Kemp Direct at 36, 38–41.

A computer model of the increased storm surge that occurred during Hurricane Rita also implicates the MR-GO funnel as a contributor to flooding during that storm. Pls. 4/13/12 Br. 65 (citing 12/6/11 Kemp Direct at 254, 257).

For these reasons, the court has determined that Plaintiffs established the Army Corps of Engineers’ construction, expansions, operation, and failure to maintain the MR-GO caused a “funnel effect” that exacerbated storm surge during Hurricane Katrina and subsequent hurricanes and severe storms.

f. The Government’s Arguments Are Not Supported By The Law Or The Record.

The Government posits several legal arguments and factual scenarios to support its position that Plaintiffs failed to establish that increased salinization, increased habitat/wetland loss, increased erosion, and substantially increased storm surge, exacerbated by the “funnel effect,” resulting from the Army Corps’ construction, expansions, operation, and failure to maintain the MR-GO, caused flooding on their properties during Hurricane Katrina and subsequent hurricanes and severe storms.

i. Flooding On Plaintiffs’ Properties Did Not Occur On A Single Occasion, But Instead Was “Inevitably Recurring.”

First, the Government argues, “Flooding experienced on a single occasion—even if attributable to [G]overnment action—cannot constitute a taking.” Gov’t 4/13/12 Br. 1. “Plaintiffs ask the Court to ignore well-established and controlling law and become the first court ever to sustain a takings claim on the basis of one flood.” Gov’t 5/18/12 Resp. 1. Nor can the “inevitably recurring” standard be established by a single flood event. Gov’t 4/13/12 Br. 29–30 (citing *Ridge Line*, 346 F.3d at 1357 (quoting *Eyherabide v. United States*, 170 Ct. Cl. 598, 604 (1965) (“Isolated invasions, such as one or two floodings . . . , do not make a taking[.]”); see also *Fromme v. United States*, 188 Ct. Cl. 1112, 1118–19 (1966) (“[O]ne flooding or two floodings of land . . . cannot be regarded as a taking of a permanent interest in the affected land.”) (internal citations omitted); *Hartwig v. United States*, 202 Ct. Cl. 801, 809 (1973) (“The principle may be reduced to the simple expression: ‘One flooding does not constitute a taking.’”) (quoting *B Amusement Co. v. United States*, 148 Ct. Cl. 337, 341 (1960))). Therefore, Plaintiffs cannot establish causation without evidence of “a permanent liability to intermittent but inevitably recurring overflows.” Gov’t 4/13/12 Br. 29 (quoting *Cress*, 243 U.S. at 328).

The Government accurately quotes one phrase in *Cress*, but the full context of that phrase, although dictum, recognizes that non-permanent flooding may be a temporary taking:

There is no difference of kind, but only of degree, between a permanent condition of continual overflow by backwater and a permanent liability to intermittent but

inevitably recurring overflows; and, on principle, the right to compensation must arise in the one case as in the other. If any substantial enjoyment of the land still remains to the owner, it may be treated as a partial instead of a total divesting of his property in the land.

Cress, 243 U.S. at 328.

Of course, this is precisely the situation this case presents. That being said, the Government misses the point of the United States Supreme Court's holding that is found *prior* to its explanation of the difference between a permanent and a temporary taking. That holding states, "[I]t is the *character of the invasion*, not the amount of damage resulting from it, . . . that determines the question whether it is a taking." *Id.* at 328 (emphasis added). And, for that reason, the Court affirmed the trial judge's awarding compensation to the plaintiffs for the taking of lands, as well as water rights. *Id.* at 332.

The Government also argues that without evidence of multiple floods of "inevitable recurrence," Plaintiffs cannot establish a taking. Gov't 5/18/12 Resp. 14. In *Fromme*, for example, the United States Court of Claims rejected a takings claim where plaintiffs had alleged a single flood and a future risk of flooding, on average, of once every fifteen years. Gov't 5/18/12 Resp. 14 (citing *Fromme*, 188 Ct. Cl. at 1119). Similarly, *Singleton* rejected a takings claim based on a single flood, plus the expectation of flooding once every seventy-five to one hundred years. Gov't 5/18/12 Resp. 14 (citing *Singleton v. United States*, 6 Cl. Ct. 156, 162–63 (1984)). According to the Government, *Baird* also reached the same result, rejecting a takings claim where the plaintiffs established one flooding event and a likelihood of future flooding once every 120–130 years. Gov't 5/18/12 Resp. 14–15 (citing *Baird v. United States*, 5 Cl. Ct. 324, 329 (1984)).

Again, the record in this case evidences, after Hurricane Katrina, increased storm surge during Hurricanes Rita, Gustav, and Ike and severe storms continued to flood Plaintiffs' properties. As such, the record in this case is substantially different from in *Fromme*, *Singleton*, and *Baird*. Likewise, in *Hartwig*, the Army Corps' operation of a dam flooded more than 100 acres of the plaintiffs' land, permanently destroying more than thirty-five acres and improvements thereon. See 202 Ct. Cl. at 804. But, the Court of Claims rejected the plaintiffs' taking claim, because they did not establish that a similar flood would inevitably recur. See *id.* at 809–10. Of course, that is not the case here, where several subsequent hurricanes and severe storms occurred after Hurricane Katrina satisfying the "inevitably recurring" element discussed in *Cress*. In fact, it was the "inevitably recurring" concern about future flooding from post-Katrina hurricanes and severe storm surge that was the impetus for the Army Corps' June 5, 2008 decision to "deauthorize" the MR-GO, at the direction of Congress. 2010 FEASIBILITY REPORT at S-2.

It is also now settled that "[G]overnment-induced flooding of limited duration may be compensable." *Ark. Game & Fish*, 133 S. Ct. at 519.³³ To ascertain whether a temporary taking by Government-induced flooding occurred, the trial court should consider the "character of the

³³ The holding in *Cress*, on which the United States Supreme Court recently relied in *Arkansas Game & Fish*, also appears to diminish the precedential import of *Ridgeline*'s conclusion that "one or two floodings do not make a taking." 346 F.3d at 1357.

invasion. The substantially increased MR-GO-induced storm surge during Hurricane Katrina, *i.e.*, the invasion, had a “character” that evidences a taking *per Cress*. In addition, Plaintiffs’ properties also experienced “intermittent, but inevitably recurring” flooding thereafter until July 2009, when the Army Corps permanently closed the MR-GO. 12/6/11 Kemp Direct at 76–77, 135–36, 253 (describing similar storm surge patterns in Hurricane Rita).

For these reasons, the court has determined that a temporary taking may arise from one occasion of flooding, in light of its character, as was the case during Hurricane Katrina. But, as the record in this case evidences, Plaintiffs also experienced flooding that was “inevitably recurring.”

ii. Hurricane Katrina Was Not An Intervening Event That Broke The Chain Of Causation.

Second, the Government argues that Plaintiffs have not met their evidentiary burden, because “an intervening and unpredictable natural force—like a hurricane or tropical storm”—precludes the court from finding that the flooding was “the direct, natural and probable result” of the MR-GO. Gov’t 4/13/12 Br. 26. Therefore, the Government posits that “[t]he question is not whether the United States could have foreseen a potential set of circumstances in which indirect effects of the MRGO might exacerbate storm surge in the region.” Gov’t 4/13/12 Br. 26. Hurricane Katrina was an “intervening, and unpredictable natural force” that broke the chain of causation. Gov’t 4/13/12 Br. 26. In support, the Government relies on *Cary v. United States*, 552 F.3d 1373, 1378–81 (Fed. Cir. 2009), where the United States Court of Appeals for the Federal Circuit in a takings case held that the illegal action of a hunter, who started a fire that spread to plaintiffs’ properties, was an intervening act that broke the chain of causation, where Forest Service policies may have made forest fires more likely.

The Government correctly states that increased risk or knowledge of a risk does not establish a direct, natural, or probable result. Gov’t 5/18/12 Resp. 8 (citing *Cary*, 552 F.3d at 1377–78 (holding that “charging the [G]overnment with increasing the risk” that wildfires in a national park could spread to neighboring private property is not equivalent to “plead[ing] that the loss of property would be the likely, foreseeable result” of the Government’s actions)); *see also Cary*, 552 at 1378 (observing that “[t]aking a calculated risk, or even increasing a risk of a detrimental result, does not equate to making the detrimental result direct, natural, or probable”). Therefore, in this case, Plaintiffs must show that their property loss was “the likely, foreseeable result of a [an authorized government action or] policy[.]” *Id.* at 1377; *see also Moden*, 404 F.3d at 1343 (explaining that “direct, natural, or probable result” means that “the injury [must be] the likely result of the act,” not “that the act was the likely cause of the injury”).

The Government misreads *Cary*. The analysis in *Cary* began with a discussion of the *Ridge Line* two-part test “characterized as causation and appropriation.” *Cary*, 552 F.3d at 1377. As to causation, the United States Court of Appeals for the Federal Circuit held that a plaintiff in a takings case must establish that “the government intend[ed] to invade a protected property interest *or* [that] the asserted invasion [was] the direct, natural, or probable result of an authorized activity and not the incidental or consequential injury inflicted by the action.” *Id.* at 1377 (quoting *Ridge Line*, 346 F.3d at 1355) (emphasis added).

Plaintiffs do not contend that the Army Corps built the MR-GO with the intention to invade Plaintiffs' properties by flooding. But, by December 2001, the Army Corps considered a total closure of the MR-GO, because of the environmental conditions it created. SPX 0298 at 16 (citing twenty-two "ecosystem restoration alternatives," including total closure of the MR-GO). Other Army Corps documents evidence that, in November 2004 and in 2005—prior to Hurricane Katrina—the conditions created by the MR-GO had escalated into a dangerous situation because increased storm surge during any hurricane or tropical storm was predicted to breach the navigational channel into Lake Borgne, causing flooding. 2004 ARMY CORPS STUDY at MRGO 31 ("*Rapid action is required* to project the integrity of the southern Lake Borgne shoreline and to prevent continued erosion of the MRGO channel banks from ocean going vessel wakes." (emphasis added)); 2005 ARMY CORPS DRAFT STUDY at 1-15 (U.S. ARMY CORPS OF ENG'GS LA. DEPT. OF NATURAL RES. MRGO CRITICAL SHORELINE PROT. FEASIBILITY STUDY (Draft Jun. 23, 2005) ("Changes in salinity and water circulation in the Lake Pontchartrain Basin caused by the MRGO have increased the rate of wetlands loss in the area, and these changes to geomorphic structure in this part of the Deltaic Plain would increase the storm surge of hurricanes and tropical storms that impact this area of coastal Louisiana.")). Therefore, by 2004–2005 at the latest—and prior to Hurricane Katrina—it can be fairly said that the risk of injury by flooding was imminent.

As the record reflects, the flooding of Plaintiffs' properties was the "direct, natural, or probable result" of the Army Corps' authorized construction, expansions, operation, and failure to maintain the MR-GO and not "incidental or consequential" injury. *See Cary* at 1377 (quoting *Ridge Line*, 346 F.3d at 1355). In other words, the substantially increased storm surge-induced flooding of Plaintiffs' properties that occurred during Hurricane Katrina and subsequent hurricanes and severe storms was the direct result of the Army Corps' cumulative actions, omissions, and policies regarding the MR-GO that occurred over an extended period of time. *See Ark. Game & Fish Comm'n v. United States*, 87 Fed. Cl. 594, 624 (2009) ("Because the [G]overnment set this chain of events into motion through authorized deviations from the water control plan, the fact that there was some later incident that may have 'tilted the scale,' *Cary*, 552 F.3d at 1379, does not break the chain of foreseeable results of the government's authorized action."). Here too, the Army Corps set a chain of events into motion that substantially increased storm surge and caused flooding during Hurricane Katrina and subsequent hurricanes and severe storms. *See Cary*, 552 F.3d at 1379 ("The landowners would be correct that the [G]overnment did not need to light the match to be liable, but to be a taking, it must have at least authorized supplying the fuel."). In this case, the Army Corps provided that fuel—the MR-GO.

For these reasons, the court has determined that Hurricane Katrina was not an intervening event that broke the chain of events of causation.

iii. Neither Subsidence, Sea Level Rise, Nor Land Loss Was The Cause Of Flooding On Plaintiffs' Properties.

Third, the Government insists that wetland loss from recurring storms in the St. Bernard Polder must be considered a secondary factor at best. 5/30/12 Gov't Resp. 26–27; *see also* 1972 BASELINE STUDY at 66. As Plaintiffs' expert, Dr. Kemp, admits, causation is complicated by the mix of natural and man-made contributions to the flooding that Plaintiffs experienced. Gov't 4/13/12 Br. 38 (citing 12/12/11 TR 472 (Kemp)). The St. Bernard Polder "has always been vulnerable to flooding." Gov't 4/13/12 Br. 4 (citing 12/14/11 TR 989–90 (Britsch)); *see also*

United States v. Spontenbarger, 308 U.S. 256, 261 (1939) (observing that small levees were built around New Orleans as early as 1717). In fact, local subsidence³⁴ and sea level rise have contributed significantly to the St. Bernard Delta's vulnerability to flooding. Gov't 4/13/12 Br. 5–6. Everything else being equal, land subsidence increases the risk of flooding. 12/12/11 TR 103 (Estopinal). Mr. Estopinal, in his experience as a land surveyor, estimated that the land in St. Bernard Parish sunk approximately two-tenths of a foot per decade. 12/12/11 TR 103 (Estopinal); *see also* 12/8/11 Britsch Direct at 25–26 (estimating a subsidence rate of 0.5 to 0.7 feet per century); 12/13/11 TR 469 (Kemp) (agreeing with Dr. Britsch's subsidence estimate). But, due to the age of the delta and the relatively thin layer of more recent sediment—which is more easily compacted over time, the St. Bernard delta is “one of the more stable areas with respect to subsidence.” 12/13/11 TR 466 (Kemp).

In addition, according to the Government's expert, Dr. Britsch, although the rate of land loss dramatically increased after the construction of the MR-GO:

I feel that it's only one of numerous things that have been going on in this basin, many of which were occurring well before the MRGO was built. Things like subsidence, sea level rise, land loss, thousands and thousands of acres of land loss that were unrelated to the MRGO and lots of men's activities in these same wetlands that all fit together, combine[d] to change the hydrology, affect the tides, and ultimately impact the flooding in this area.

12/14/11 TR 899 (Britsch); *see also* 12/8/11 Britsch Direct at 29 (“[I]n the aggregate, the overwhelming amount of land loss in the St. Bernard Delta is unrelated to the MRGO.”); 12/14/11 TR 951 (Britsch) (explaining that land loss is distinct from habitat loss).

In addition, Plaintiffs made no attempt to distinguish the impact of the MR-GO from the natural conditions outside the levee system. Gov't 4/13/12 Br. 71–77. For example, properties along Paris Road are only two feet above sea level, and thus a half-foot of subsidence could “be a determining factor in the frequency and magnitude of flooding.” Gov't 4/13/12 Br. 73 (quoting 12/8/11 Britsch Direct at 26). Therefore, elevated water levels near Plaintiffs' properties “are neither novel nor unprecedented and pre-date the construction of the MRGO.” Gov't 4/13/12 Br. 74 (citing 12/8/11 Britsch Direct at 24, 29).

Finally, the Government points out that globally, sea levels have risen approximately three inches from 1961 to 2003, or about 0.07 inches per year. 12/8/11 Britsch Direct at 25 (citing INT'L PANEL ON CLIMATE CHANGE (IPCC), *FOURTH ASSESSMENT REPORT: CLIMATE CHANGE* (2007) at 2). But, as Dr. Britsch explained that, “really what contributes to flooding is relative sea level rise—*i.e.*, sea levels relative to the height of land. In coastal Louisiana, the land is sinking locally at the same time that sea levels are rising globally.” 12/8/11 Britsch Direct at 25. These estimates, however, “are likely conservative because they represent long-term averages and may not fully reflect recent short-term changes, such as rapid rises in sea level.” 12/8/11 Britsch Direct at 25–26.

³⁴ Land subsidence refers to land sinking relative to local mean sea level.

Dr. Britsch correctly notes that “[h]alf a foot [of subsidence plus sea level rise] may not seem like a lot of change, but in areas that are only slightly above sea level or near sea level, a half a foot can make the difference between whether your land is flooded or not.” 12/14/11 TR 991 (Britsch).³⁵ But, Dr. Britsch concludes:

[W]hile I agree that the MRGO is a contributor, I think the amount of land loss that’s happening on this coast, in this area, the subsidence that’s occurring, sea level rises occurring, I think those are the dominant factors in the changes we’ve seen in the hydrology and ultimately in the flooding in these areas.

12/14/11 TR 995 (Britsch); 12/8/11 Britsch Direct at 12 (testifying that land loss in the St. Bernard Polder occurred during the MRGO’s construction, or immediately thereafter).

The Government further adds that since Plaintiffs did not attempt to quantify independently total land loss in the St. Bernard Polder or estimate the portion that could be contributed to the MR-GO, they failed to establish the causal link between the MR-GO and land loss in the St. Bernard Delta. 12/14/11 TR 897 (Britsch). Other factors also explain the flooding experienced on Plaintiffs’ properties outside the levee system. 12/8/11 Britsch Direct at 23 (Erosion from 1930–1960 outpaced erosion from 1960–1995, along the southern shoreline of Lake Borgne).

In addition, the Government notes that the movement of water via natural channels explains the increased flooding during Hurricane Katrina and thereafter because these conditions predated the MR-GO. Gov’t 4/13/12 Br. 73–74. East winds have always blown across Lake Borgne and raised water levels along the southern shoreline. 12/6/11 Kemp Direct at 239, 250–51. But, the Government misses the point that prior to the construction of the MR-GO, land barriers and wetlands prevented this water from infiltrating far inland. 12/6/11 Kemp Direct at 236–38. The record evidences that the construction and expansions of the MR-GO in particular allowed this water to infiltrate inland. SPX.01103 at 4-61; SPX.01100 at 1; 12/6/11 Kemp Direct at 236–38. Moreover, the Government points to no evidence that an increase in the rate of subsidence after MR-GO’s construction and the slow acceleration of global sea level rise explain the substantially increased storm surge during Hurricane Katrina. In fact, one report relied upon by Dr. Britsch comes to the opposite conclusion: “Regional subsidence or slight sea level rise would also account for dying of the fringes of fresh swamp. . . . However, subsidence is probably only of secondary

³⁵ Dr. Britsch also opined that areas outside the federal levee system may be particularly vulnerable to subsidence and sea level rise:

Government Counsel: And the land features we’re talking about in Yscloskey, Shell Beach, Hopedale, Alluvial City, these type of areas, how significant is a half a foot of subsidence over a century?

Dr. Britsch: Again, it depends on the elevation of each individual property. But as you can see, we’re right on the edge of the delta here with water a stone’s throw away from your property. So obviously small changes in relative sea levels have an impact.

12/14/11 TR 992–93 (Britsch).

importance in accounting for the very rapid decay of the fresh swamp unit of the study area.” 1972 BASELINE STUDY at 66–67. Plaintiffs did not need to qualify “independently” what amount is attributed to the MR-GO, because the Army Corps Environmental Restoration Phase II, Feasibility Study reports evidence of that fact. 2010 DRAFT EIS at 1-16 (“The construction, operation, and maintenance of the MRGO caused the loss of approximately 24,610 acres and indirectly to an additional loss of 33,920 acres. Approximately 63,178 acres of land is estimated to have been lost in the study area from 1985 through 2010. Approximately 131,091 acres are projected to be lost between 2010 and 2065 within the study.”) (internal citations omitted)); *see also* SPX.0773 at 17; SPX.0129 at App’x 5, MRGO 12 (“The data indicates that land loss rates have accelerated since 1990”). Although subsidence, sea level rise, and land loss took their toll on the region, the evidence in this case demonstrates that the MR-GO had the principal causal role in creating the environmental damage in St. Bernard Polder.

For these reasons, the court has determined that the record does not evidence that subsidence, sea level rise, or land loss was the cause of flooding that occurred on Plaintiffs’ properties during Hurricane Katrina and subsequent hurricanes and severe storms.

iv. Economic Development Was Not The Cause Of Habitat/Wetland Loss.

Fourth, the Government argues that “economic development,” occurring throughout the Louisiana coast, was more damaging to wetlands than the MR-GO.³⁶ It is true that St. Bernard Parish developed economically between the construction of the MR-GO and Hurricane Katrina. 12/12/11 TR 95 (Estopinal). Many of the areas that were wooded lowlands in the 1950s and 1960s are now developed, leveed, and drained. 12/12/11 TR 95–96 (Estopinal). And, canals other than MR-GO have been used for navigation, as well as to install gas pipelines and access well heads. 12/12/11 TR 97 (Estopinal). But the Government’s experts and witnesses offered no evidence that development was a primary factor in the flooding experienced during Hurricane Katrina and thereafter. In any event, the influence of other artificial channels in the area was overshadowed by the footprint of the MR-GO. 12/6/11 Kemp Direct at 240.

For these reasons, the court has determined that the record did not evidence that economic development was the cause of habitat/wetland loss in the St. Bernard Polder.

³⁶ Dr. Britsch had little or nothing to say about the impact of economic development in the region. Dr. Britsch only testified that, as the swamp land drained, areas within the Forty Arpent Levee would subside at a greater rate than other areas. 12/8/11 Britsch Direct at 26–27. In fact, Dr. Britsch’s explanation that drained wetlands may subside at a greater rate helps explain the increased subsidence after salinity increased and habitat/wetland loss caused by the Army Corps’ construction, expansions, operation, and failure to maintain the MR-GO.

v. Post-Katrina Remedial And Restoration Efforts Do Not Negate The Army Corps' Liability For A Temporary Taking Of Plaintiffs' Properties By Flooding.

The Government argues that it “has now completed construction of one of the most impressive hurricane protection systems in the world (and taken extraordinary steps to address the wetland degradation in this area)[.]” Gov’t 5/18/12 Resp. 42.³⁷ But, the Government acknowledges that “Plaintiffs are entirely correct” that “[i]t is a bedrock principle of takings law that where the Government has already taken private property for public use, ‘no subsequent action by the [G]overnment can relieve it of the duty to provide compensation for the period during which the taking was effective.’” Gov’t 5/18/12 Resp. at 43 (citing Pl. 4/13/12 Resp. at 108 (quoting *First English Evangelical Lutheran Church v. Cnty. of L.A.*, 482 U.S. 304, 321 (1987))).

The fact that the Government closed the MR-GO in July 2009 does not affect the Government’s liability for a temporary taking. *See United States v. Dickinson*, 331 U.S. 745, 751 (1947) (“[The landowner] reclaimed most of his land which the Government originally took by flooding. The Government claims that this disentitled him to be paid for the original taking. The courts below properly rejected this defense. . . . [N]o use to which [the landowner] could subsequently put the property by his reclamation efforts changed the fact that the land was taken when it was taken and an obligation to pay for it then arose.”). The date of closure, however, places a definitive end date on the duration of the temporary taking at issue in this case and precludes future claims arising from these facts.

For these reasons, the court has determined that the duration of the temporary taking in this case was from August 28, 2005 to July 2009.

vi. Plaintiffs' Claims Are Not Barred By The Statute Of Limitations.

The Government also argues that the timing of Plaintiffs’ claims is inconsistent with a causal relationship between the environmental effects of the MR-GO and flooding experienced during Hurricane Katrina. The evidence suggests that “MRGO’s impact on the environment was widespread and obvious . . . shortly after the project’s construction.” Gov’t 4/13/12 Br. 70³⁸ (citing

³⁷ *See* U.S. ARMY CORPS OF ENG’RS, GREATER NEW ORLEANS HURRICANE & STORM DAMAGE RISK REDUCTION SYS., FACTS & FIGURES (Sept. 2004), at 2 (showing that \$2.2 billion has not been obligated as of September 2014), *available at* <http://www.mvn.usace.army.mil/Portals/56/docs/HSDRRS/Facts-figuresSeptember2014.pdf> (last visited Apr. 30, 2015). As of September 2014, the Army Corps has spent \$12.4 billion to construct the Hurricane & Storm Damage Risk Reduction System. An additional \$2.2 billion has been budgeted, but not obligated. In addition, on December 2, 2010, The Army Corps’ proposed to spend \$2.9 billion to restore part of the ecosystem that the MRGO destroyed. Pls. 4/13/12 Prop. FOF ¶¶ 407–12 (referencing a \$3.1 billion restoration plan); 2010 DRAFT EIS at 2-55 (listing four possible plans of up to \$3.1 billion), ES-7 (recommending a \$2.9 billion plan).

³⁸ On this point, the Government’s briefs are internally inconsistent. *Compare* Gov’t 4/13/12 Br. 74 (“[M]ost of the land loss in the St. Bernard Delta is *not related to the MRGO*[.]”)

1972 BASELINE STUDY at 66 (describing the degradation of the swamp prior to 1972)); 12/13/11 TR 640 (Robin) (testifying that the cypress trees had all died by the early 1970s). As Dr. Britsch testified, “the most significant portion of the land loss in the St. Bernard Delta occurred during the construction of the MRGO, or immediately thereafter.” Gov’t 5/18/12 Resp. 22 (citing 1972 BASELINE STUDY at 66; 12/8/11 Britsch Direct at 12). In fact, the rate of erosion along the southern shoreline of Lake Borgne was higher prior to the completion of the MR-GO. Gov’t 4/13/12 Br. 74 (citing 12/8/11 Britsch Direct at 23 (“[S]horeline erosion . . . rates [along the southern shoreline of Lake Borgne close to the MRGO] were actually higher pre-MRGO [1930–1960], than post-MRGO [1960–1995].”)).

As such, “the potential for increased conveyance was also present . . . shortly after the project’s construction,” but “Plaintiffs allege that their properties did not experience any floods that could constitute the basis of a takings claim until more than thirty years later.” Gov’t 4/13/12 Br. 70 (citing *St. Bernard Parish I*, 88 Fed. Cl. at 553 (finding that prior to “October 17, 1999 . . . [P]laintiffs had not experienced flooding . . . so substantial and frequent as to constitute a taking”) (internal quotation omitted))). In fact, Plaintiffs testified that hurricanes and tropical storms caused flooding prior to Hurricane Katrina. Gov’t 5/18/12 Resp. 22, 37–38 (citing 12/13/11 TR 624 (Robin); 12/13/11 TR 487 (Kemp)); *see also* 12/8/11 Britsch Direct at 29; 12/14/11 TR 989 (Britsch). For example, at Shell Beach, near several of Plaintiffs’ properties outside the levee system, nine documented floodings occurred during major storms between 1901 and 1965. Gov’t 4/13/12 Br. 5 (citing 12/8/11 Britsch Direct at 29); *see also* RJX-195 at 3-10 (depicting thirteen major hurricanes between 1889 and 2005). In addition, the evidence supports “a connection between winds from the northeast and high water levels in the wetland areas south of Lake Borgne” that existed prior to the MR-GO’s construction and Plaintiffs have not established that the MR-GO changed the relationship between easterly winds and flooding on Plaintiffs’ properties. Gov’t 4/13/12 Br. 66–67 (citing 12/8/11 Britsch Direct at 29). Moreover, Plaintiffs failed to analyze the relationship between winds and water levels prior to the construction of the MR-GO and did not consider whether the relationship intensified over time. 12/13/11 TR 449, 461, 463 (Kemp). Instead, Plaintiffs’ expert witness “merely note[s] that flooding has been observed and then opine[s] that the MRGO is the cause.” Gov’t 4/13/12 Br. 71.

Therefore, the Government concludes that the statute of limitations bars Plaintiffs’ claims. Gov’t 5/18/12 Resp. 2 (“If Plaintiffs are correct that risk of future flooding alone is sufficient to sustain a takings claim, Plaintiffs’ papers prove definitively that the statute of limitations bars any such claim.”); Gov’t 5/18/12 Resp. 9–10 (“Plaintiffs now contend that the [Army] Corps of Engineers knew of the risk the MRGO created at least from the early 1970s. . . . If Plaintiffs are correct that an increased risk of flooding without proof of inevitably recurring flooding can show a violation of the Fifth Amendment, the statute of limitations bars Plaintiffs’ claims[.]”) (internal quotation marks omitted). The Government adds that any “funnel effect” also came into existence at the time of the construction of the MR-GO, decades prior to Plaintiffs’ July 6, 2011 Third

(emphasis added), *with* Gov’t 5/18/12 Resp. 22 (“[T]he *most significant* portion of the land loss in the St. Bernard Delta occurred *during the construction of the MRGO*, or immediately thereafter.”) (emphases added) *and* SPX.0129 at MRGO 12 (U.S. ARMY CORPS OF ENG’RS, LA. COASTAL AREA (LCA), LA., ECOSYSTEM RESTORATION STUDY (2004) (“[L]and loss rates have accelerated since 1990,” exceeding the rate of loss experienced during construction of the MR-GO)).

Amended Complaint. Gov't 5/18/12 Resp. 24. As such, the statute of limitations bars any claim arising from the existence of a funnel. Gov't 5/18/12 Resp. 24 ("Plaintiffs failed to present any technical or scientific evidence explaining how the MRGO could exacerbate the natural funnel effect, have that effect exist for decades, but not manifest into increased flooding on their properties until some undefined time within six years of the filing of their lawsuit.").

On August 3, 2009, the court determined that the statute of limitations does not bar Plaintiffs' claims because the "the stabilization doctrine applies in this case." *See St. Bernard Parish I*, 88 Fed. Cl. at 555; *see also Dickinson*, 331 U.S. at 749 (holding that where injury from water intrusion emerges gradually over time, such as recurrent flooding, a cause of action for a taking by a "continuing process of physical events" does not arise "until the situation becomes stabilized"). The factual evidence adduced at the trial in this case demonstrated that the environmental condition created by the construction, expansions, operation, and failure to maintain the MR-GO took place over many years, as it did in *Cotton Land Co. v. United States*, where "a poorly constructed dam caused sediment to deposit in the riverbed upstream of the dam. Over time, the sediment raised the level of the river bottom until the waters crested the banks, flooding the plaintiff's land. The court found a taking even though the injury occurred years after the act of constructing the dam, because the flooding was the 'natural consequence[] of the collision of the sediment-bearing flowing water with still water, and the progress upstream, of the deposit begun by that collision.'" *Cary*, 552 F.3d 1378 (quoting *Cotton Land*, 109 Ct. Cl. 816, 829 (1948)). The evidence in this case established that the substantial increase in storm surge and flooding was the "direct, natural or probably result" of the construction, expansions, operation, and failure to maintain the MR-GO. Therefore, no intervening changes in the law or facts require the court to reconsider its prior ruling that the statute of limitations does not bar Plaintiffs' temporary takings claim in this case.

5. Plaintiff Established That The Injury From Flooding Was Substantial And Severe.

The United States Supreme Court has discussed the "substantiality" element of causation, in the context of a takings clause case using different descriptive terms. In *Penn Central Transportation Co. v. New York City*, 438 U.S. 104, 124 (1978), the Court stated that a plaintiff in a takings case must show the economic impact of a taking on Plaintiff's property interests. In *Arkansas Game & Fish*, the Court stated that a plaintiff alleging a temporary takings claim must establish "the severity of the [Government's] interference" with a cognizable property interest. 133 S. Ct. at 522; *see also Ridge Line*, 346 F.3d at 1356 ("[T]o constitute a taking, an invasion must . . . at least preempt the owner[']s right to enjoy his property for an extended period of time rather than merely inflict an injury that reduces its value.").

The record evidences that multiple flood events occurred to properties outside the federal levee system. Dr. Kemp testified that twelve of Plaintiffs' properties outside the levees flooded during Hurricanes Camille, Carmen, Andrew, Katrina, and Rita. 12/6/11 Kemp Direct at 266. In addition, Plaintiffs provided expert and testimonial evidence of flooding during Hurricanes Gustav, Ike and Tropical Storm Lee. 12/6/11 Kemp Direct at 265; 4/13/12 Pls. Prop. FOF ¶¶ 26–43, 55–64, 76–80 (describing flooding on specific properties during and after Hurricane Katrina); 12/13/11 TR 631–32, 634–35, 653 (Robin); 12/14/11 TR 847–48 (Willhoft). Thus, Plaintiffs have provided evidence of flooding during hurricanes and severe storms.

There is no question that flooding on Plaintiffs' properties during Hurricane Katrina was severe. In addition, Plaintiffs established that their properties were flooded and that they had no ability to access or use their properties for a significant time period following Hurricanes Katrina and Rita. *See, e.g.*, Pls. 4/13/12 Prop. FOF ¶¶ 26–43, 55–64, 76–80, 89; Gov't 5/18/12 Resp. To Pls. 4/13/12 Prop. FOF ¶ 89 (acknowledging that the Bordelons were not allowed access to their property for more than four weeks after the flooding); 12/12/11 TR 171, 177 (Tommaseo) (testifying that he could not visit his properties on Fenelon for one month after Hurricane Katrina, and did not return to live in his St. Bernard Parish residence for eighteen months after Hurricane Katrina); 10/15/10 Adams Dep. 18–19 (describing how the Adams family were not allowed back to their property for months after Hurricane Katrina). In addition, the same evidence shows that many of Plaintiffs' properties experienced flooding during subsequent hurricanes and severe storms. 12/13/11 TR 631–35 (Robin) (describing flooding after Hurricane Katrina from Hurricanes Gustav, Ike and Tropical Storm Lee and severe storms).

For these reasons, the court has determined that Plaintiffs established that flooding during Hurricane Katrina and subsequent hurricanes and severe storms “preempted” access and use of their properties and that preemption was “substantial” and “severe.”

III. CONCLUSION.

In *Arkansas Game & Fish*, the United States Supreme Court held that “[f]looding cases, like other takings cases, should be assessed with reference to the ‘particular circumstances of each case,’ and not by resorting to blanket exclusionary rules.” 133 S. Ct. at 521; *see also Loretto v. Teleprompter Manhattan CATV Corp.*, 458 U.S. 427 (1982) (“[N]o ‘set formula’ exists to determine, in all cases, whether compensation is constitutionally due for a [G]overnment restriction on property. Ordinarily, the Court must engage in ‘essentially ad hoc, factual inquiries.’” (quoting *Penn Central*, 438 U.S. at 124); *Ridge Line*, 346 F.3d at 1352 (“A determination of whether a taking . . . has occurred is a question of law *based on factual underpinnings*.”) (emphasis added)).

Weighting all the evidence in this case, the court has determined that Plaintiffs established that the Army Corps' construction, expansions, operation, and failure to maintain the MR-GO caused subsequent storm surge that was exacerbated by a “funnel effect” during Hurricane Katrina and subsequent hurricanes and severe storms, causing flooding on Plaintiffs' properties that effected a temporary taking under the Fifth Amendment to the United States Constitution.

* * *

Going back to the origins of causation in this case, in 1956, Congress authorized the Army Corps to construct the MR-GO to promote economic development in the New Orleans area and provide jobs. At that time, the environmental footprint of a project of this size was not considered. It was not until 1970, when President Richard M. Nixon had the foresight to champion legislation to authorize the EPA that any federal agency had the resources to conduct science-based cost/benefit analyses when important environmental resources were placed at risk by Government action.

Certainly by 2004, the Army Corps no longer had any choice but to recognize that a hurricane inevitably would provide the meteorological conditions to trigger the ticking time bomb created by a substantially expanded and eroded MR-GO and the resulting destruction of wetlands that had shielded the St. Bernard Polder for centuries.

In August 2005, when Hurricane Katrina struck the St. Bernard Polder, the Army Corps was still discussing whether to close the MR-GO and whether Congress would fund the closure. Neither Congress nor the Army Corps had the opportunity to correct the situation before the MR-GO induced substantially increased storm surge that caused catastrophic flooding on private property—as well as the loss of human life.

Subsequently, Congress authorized the Army Corps to close the MR-GO permanently and to build substantial protective structures to minimize, if not prevent, the impact of a Katrina-like hurricane in the future. The court has had the benefit of touring the new HSDRRS, and by any measure the Army Corps' work is impressive.

Since this case began, the court has found that the Army Corps' leadership and staff were open, transparent, and helpful in educating the court to understand what happened. In contrast, the Department of Justice pursued a litigation strategy of contesting each and every issue—whether evidentiary or substantive. As the twenty-two page Memorandum Opinion and Final Order on Evidentiary Issues, is filed herewith, manifests.

Today, the court has issued a liability opinion and scheduled a non-public conference with all parties on May 6, 2015 in New Orleans to ascertain whether they will agree to have damages assessed by a knowledgeable and accomplished mediator—and, in short order. In light of the United States Supreme Court's recent decision in *Arkansas Game & Fish* and the weight of the evidence in this case, it is the considered view of the undersigned judge that further litigation in this matter is not in the interest of the Army Corps and will not serve the interests of justice. It is time for this final chapter of the MR-GO story to come to an end.

IT IS SO ORDERED.

s/ Susan G. Braden
SUSAN G. BRADEN
Judge

COURT EXHIBIT A

**Liability Trial, New Orleans, Louisiana
December 12, 2011 to December 15, 2011**

Plaintiffs' Witnesses
(In order of appearance)

Mr. Stephen Estopinal, land surveyor and civil engineer who works and lives in Louisiana and has surveyed substantial portions of St. Bernard Parish.

12/12/11 TR 74–112

Ms. Michelle Walsh, Director of the Insurance Department for the St. Bernard Parish Gov't.

12/12/11 TR 113–151

Mr. Tommoso G. (“Tommy”) Tommaseo, named Plaintiff.

12/12/11 TR 154–186

Mr. George Paul Kemp, Ph.D., Vice President of the National Audubon Society and Director of the Louisiana Gulf Coast Initiative.

12/12/11 TR 188–399; 12/13/11 TR 400–583

Mr. Brad Lee Robin, Sr., named Plaintiff.

12/13/11 TR 583–655

Mr. Joseph Suhayda, Ph.D., Coastal Hydrologist and Coastal Oceanographer with an advanced degree in Physical Oceanography.

12/13/11 TR 657–799; 12/14/11 TR 803–836

Mr. Rod Wilholft, President of Plaintiff Port Ship Service Inc., a Louisiana Corporation with its principal place of business in St. Bernard Parish.

12/14/11 TR 837–849

The Government's Witnesses

Mr. Michael Park, Chief, Task Force Hope, United States Army Corps of Engineers.

12/14/11 TR 854–891

Dr. Louis D. (“Del”) Britsch III, Geologist, United States Army Corps of Engineers.

12/14/11 TR 892–996

Dr. Donald T. Resio, Director, Taylor Engineering Research Institute, Univ. of North Florida.

12/14/11 TR 996–1199

Ms. Nancy Powell, Chief, Hydraulics and Hydrologic Branch, United States Army Corps of Engineers, New Orleans District.

12/15/11 TR 1204–1234

**Damages Trial, Washington, D.C.
November 18, 2013 to November 20, 2013**

Plaintiffs' Witnesses
(In order of appearance)

Mr. Douglas Landry, employee of CDM Smith Inc., an engineering and consulting firm hired by St. Bernard Parish to oversee the Parish's recovery and reconstruction efforts.

11/18/13 TR 45–87

Mr. Andrew J. Marshall, Jr., Louisiana Certified Appraiser with thirty-six years of experience appraising residential, commercial, and industrial property.

11/18/13 TR 88–299; 11/19/13 TR 306–467

The Government's Witnesses
(In order of appearance)

Dr. Joannes J. Westerink, Ph.D, Chairman of the Department of Civil Engineering and Geological Services at the University of Notre Dame.

11/19/13 TR 471–585

Mr. Steven D. Fitzgerald, P.E., civil engineer specializing in hydrology, hydraulics, and flood damage reduction projects.

11/19/13 TR 585–597; 11/20/13 TR 604–666

James R. Danner, P.E., Vice President and Principal Civil Engineer with Denson Engineers, Inc. in New Orleans, Louisiana.

11/20/13 TR 667–731

Jean-Prieur ("J.P.") Du Plessis, CPE., Senior Cost Estimator for the Madison Kneppers & Associates, Inc. firm in New Orleans, Louisiana.

11/20/13 TR 732–762

Michael W. Traux, Sr., MAI, licensed appraiser in Louisiana and a Partner with Traux & Robles, LLC in New Orleans, Louisiana.

11/20/13 TR 766–801

COURT EXHIBIT B**List of Plaintiffs' Properties**

Plaintiff	Address	Inside Federal Levee?	Citation
Gwendolyn & Henry Adams	Residence: 2414 Deslonde St., New Orleans, LA 70117	Yes	3rd Am. Compl. ¶ 43; 10/15/10 Adams Dep. at 13
Steven & Cynthia Bordelon	Residence: 3024 Lakewood Drive, Violet, LA 70092	Yes	3rd Am. Compl. ¶ 18; SPX911; 10/14/10 Bordelon Dep. at 13
Steve's Mobile Home & R.V. Repair, Inc.	3209 E. Judge Perez Dr. Meraux, LA 70075	Yes	3rd Am. Compl. ¶ 19 SPX912; 10/14/10 Bordelon Dep. at 22
Tommoso Tommaseo	Rocky & Carlo's Restaurant: 613 West St. Bernard Hwy., Chalmette, LA 70043	Yes	3rd Am. Compl. ¶ 16i; 12/12/11 TR 155-58
Tommoso Tommaseo	2019 Lloyds Ave., Chalmette, LA 70043	Yes	3rd Am. Compl. ¶ 16ii; SPX906
Tommoso Tommaseo	2217 and 2219 DeLille St., Chalmette, LA 70043	Yes	3rd Am. Compl. ¶ 16iii
Tommoso Tommaseo	2305 Lloyds Ave., Chalmette, LA 70043	Yes	3rd Am. Compl. ¶ 16iv
Tommoso Tommaseo	3200 DeLille St., Chalmette, LA 70043	Yes	3rd Am. Compl. ¶ 16v
Tommoso Tommaseo	3200 DeLille St., Chalmette, LA 70043	Yes	12/12/11 TR 154
Tommoso Tommaseo	3610 LaFontaine St./ 3609 Sinclair St., Chalmette, LA 70043	Yes	3rd Am. Compl. ¶ 15viii
Tommoso Tommaseo	3614 LaFontaine St./ 3613 Sinclair St., Chalmette, LA 70043	Yes	3rd Am. Compl. ¶ 15ix
Tommoso Tommaseo	3610 & 3612 Fenelon St., Chalmette, LA 70043	Yes	3rd Am. Compl. ¶ 15x
Tommoso Tommaseo	3614 & 3616 Fenelon St., Chalmette, LA 70043	Yes	3rd Am. Compl. ¶ 15xi
Tommoso Tommaseo	3618 & 3620 Fenelon St., Chalmette, LA 70043	Yes	3rd Am. Compl. ¶ 15xii
Tommoso Tommaseo	2120 Stander Pl., Chalmette, LA 70043	Yes	3rd Am. Compl. ¶ 15xiii
Tommoso Tommaseo	2205 & 2207 Trio St., Chalmette, LA 70043	Yes	3rd Am. Compl. ¶ 15xiv
Tommoso Tommaseo	2004 & 2006 Victor St., Chalmette, LA 70043	Yes	3rd Am. Compl. ¶ 15xv
Tommoso Tommaseo	1923 & 1927 Rocky Rd., Chalmette, LA 70043	Yes	3rd Am. Compl. ¶ 15xvi

Tommoso Tommaseo	2016 & 2018 Lloyds Ave., Chalmette, LA 70043	Yes	3rd Am. Compl. ¶ 15xvii
Tommoso Tommaseo	601 & 603 & 605 W. St. Bernard Hwy., Chalmette, LA 70043	Yes	3rd Am. Compl. ¶ 15xviii
Tommoso Tommaseo	515 & 519 W. St. Bernard Hwy., Chalmette, LA 70043	Yes	3rd Am. Compl. ¶ 15xix
Tommoso Tommaseo	Lots 24 and 25, Square 191, Jackson Park Subdivision		3rd Am. Compl. ¶ 15xx
Rocco Tommaseo	Driving Range: 1923 and 1927 Rocky Rd. St. Bernard, LA 70085	Yes	3rd Am. Compl. ¶ 15i; SPX885
Rocco Tommaseo & Tommoso Tommaseo	505 and 507 E. Genie St., Chalmette, LA 70043	Yes	3rd Am. Compl. ¶ 15ii; 3rd Am. Compl. ¶ 15vi; SPX894
Rocco Tommaseo & Tommoso Tommaseo	6 Black Beard Key, Chalmette, LA 70044	No	3rd Am. Compl. ¶ 15iii; 3rd Am. Compl. ¶ 15vii; SPX895
Rocky and Carlo, Inc.	2016 and 2018 Lloyds Ave., Chalmette, LA 70043	Yes	3rd Am. Compl. ¶ 17 SPX908
St. Bernard Parish Government	[90 Separate Properties]		See 3rd Am. Compl. ¶ 25
Port Ship Service, Inc.	6325 Paris Rd. Chalmette, LA 70043	Yes	3rd Am. Compl. ¶ 40; SPX1034
Brad Robin	Residence: 8007 E. St. Bernard Hwy., St. Bernard, LA 70085	Yes	SPX1014; 12/13/11 TR 583–84
Brad Robin	Lots 26 & 27, Square 2, Alluvial City, LA		3rd Am. Compl. ¶ 31i; SPX1014–1015
Brad Robin	Lots 1, 2, 3, 4, 5, 15, 16, 17, Section 136; Portion of Lot 15, Bois Du Lac		3rd Am. Compl. ¶ 31ii; SPX1016–1017
Brad Robin	Eighteen Lots in Doulet Subdivision, Alluvial City, LA		3rd Am. Compl. ¶ 31iii
Robin Yscloskey Dev. #1, LLC	2320 Florissant Hwy., St. Bernard, LA 70085	No	3rd Am. Compl. ¶ 33; SPX1018
Robin Yscloskey Dev. #2, LLC	2324 Florissant Hwy., St. Bernard, LA 70085	No	3rd Am. Compl. ¶ 34 SPX1021; 12/13/11 TR 589
Robin Yscloskey Dev. #3, LLC	2328 Florissant Hwy., St. Bernard, LA 70085	No	3rd Am. Compl. ¶ 35 SPX1024
Robin Yscloskey Dev. #4, LLC	2316 Florissant Hwy., St. Bernard, LA 70085	No	3rd Am. Compl. ¶ 36
Edward “Pete” Robin, Jr.	Part of Lots 54 & 56; All of Lot 55, Hopedale Subdivision Number 1		3rd Am. Compl. ¶ 30 SPX1156; 12/13/11 TR 587–88
Edward Robin, Sr.	Part of Lot 14; All of Lots 15–18, Square 3, Alluvial City Subdivision	No	3rd Am. Compl. ¶ 29; SPX1156

In the United States Court of Federal Claims

No. 05-1119 L

May 4, 2016

ST. BERNARD PARISH GOVERNMENT
AND OTHER OWNERS OF REAL
PROPERTY IN ST. BERNARD PARISH
OR THE LOWER NINTH WARD OF THE
CITY OF NEW ORLEANS,

Plaintiffs,

v.

THE UNITED STATES,

Defendant.

* Just Compensation Award For A
* Temporary Takings Claim, U.S.
* CONST. Amend. V;
* Rules of the United States Court of
* Federal Claims (“RCFC”) 23(a)
* Class Action;
* RCFC 23(b) Class Actions
* Maintainable;
* RCFC 23(c) Class Certification
* Order;
* RCFC 23(g)(1) (Appointing Class
* Counsel);
* RCFC 54(b) Judgment Involving
* Multiple Parties;
* RCFC 56 Summary Judgment.
*

Charles J. Cooper, Cooper & Kirk, PLLC, Washington, D.C., Counsel for Plaintiffs.

William James Shapiro, Environmental and National Resource Division, United States Department of Justice, Sacramento, California, Counsel for the Government.

MEMORANDUM OPINION AND PARTIAL FINAL JUDGMENT FOR JUST COMPENSATION, PURSUANT TO RCFC 54(b), AND ORDER REGARDING CLASS CERTIFICATION AND APPOINTMENT OF CLASS COUNSEL

BRADEN, *Judge*.

On May 1, 2015, the court issued a Memorandum Opinion And Order determining that Plaintiffs established that the Army Corps of Engineers’ (“Army Corps”) construction, expansions, operation, and failure to maintain the Mississippi River-Gulf Outlet (“MR-GO”) caused increased storm surge flooding on Plaintiffs’ properties during Hurricane Katrina and subsequent hurricanes and severe storms, effecting a temporary taking under the Fifth Amendment to the United States Constitution. *See St. Bernard Par. Gov’t v. United States*, 121 Fed. Cl. 687, 746 (2015) (“Liability Decision”).

On May 6, 2015, the court convened a settlement conference in New Orleans, during which the parties discussed mediation or certification of the court’s Liability Decision. On October 9, 2015, the Government advised the court that it declined to pursue mediation. Instead, on October

30, 2015, the Government filed a Motion To Certify Interlocutory Appeal of the Liability Decision to the United States Court of Appeals for the Federal Circuit. On November 16, 2015, Plaintiffs filed a Response In Opposition. The parties, however, subsequently agreed that the most appropriate procedure to afford appellate review was for the court to enter a final partial judgment, pursuant to Rule 54(b) of the Rules of the United States Court of Federal Claims (“RCFC”), as to Just Compensation due the owners of eleven properties selected by Plaintiffs and the Government (“Trial Properties”). The court does so today, together with an Order Regarding Class Certification And Appointment Of Class Counsel.¹

To facilitate review of this Memorandum Opinion And Final Partial Judgment, the court has provided the following outline:

- I. RELEVANT BACKGROUND.
- II. THE JUST COMPENSATION DUE FOR THE TEMPORARY TAKING OF THE TRIAL PROPERTIES.
 - A. Expert Testimony On Just Compensation.
 1. Plaintiffs’ Expert, The Government’s Objections, And The Court’s Determination.
 2. The Government’s Experts, Plaintiffs’ Objections, And The Court’s Determination.
 - a. Dr. Joannes J. Westerink, PhD.
 - b. Mr. Steven D. Fitzgerald, P.E.
 - c. James R. Danner, P.E.
 - d. Mr. Jean-Prieur Du Plessis, C.P.E.
 - e. Mr. Michael W. Truax, Sr.
 - B. The Court’s Determination.
 1. Governing Precedent.
 2. The Evidence Supporting Just Compensation.
 - a. The Value Of The Underlying Land On August 29, 2005.
 - b. The Cost Of Replacement Improvements On The Non-Governmental Trial Properties.
 - 3614-16 Fenelon Street (Residential Duplex Rental).
 - 3024 Lakewood Drive (Residential).
 - 3209 East Judge Perez Drive (Commercial).
 - 2316 Florissant Highway (Residential) (Robin).
 - 6325 Paris Road (Industrial).

¹ Accordingly, the Government’s October 30, 2015 Motion To Certify is moot.

2414 Deslonde Street (Residential).

c. Fair Market Rent Lost By The Owners Of Non-Governmental Property.

i. The Land Component.

3614-16 Fenelon Street.

3024 Lakewood Drive (Bordelon).

3209 East Judge Perez Drive.

2316 Florissant Highway (Robin).

6325 Paris Road (Port Ship Service, Inc.).

2414 Deslonde Street (Adams).

ii. The Combined Land Component And Cost Of Replacement Improvements Component.

iii. The Relevant Temporary Taking Period.

iv. Fair Market Rent Lost.

d. Interest.

3. The Government's Asserted Offsets.

a. For Federal Emergency Management Agency Grants.

b. For United States Department Of Housing And Urban Development Grants Under The "Road Home Program."

C. The Court's Determination Of Just Compensation Due As To Lost Local Real Estate Tax Revenues.

III. THIS CASE IS NOW APPROPRIATE FOR CLASS CERTIFICATION.

A. The Requirements Of RCFC 23(a) Have Been Met.

1. The Class Is So Numerous That Joinder Of All Members Is Impracticable.

2. There Are Questions Of Law Or Fact Common To The Class.

3. The Claims Or Defenses Of The Representative Parties Are "Typical" Of The Claims Or Defenses Of The Class.

4. The Representative Parties Will Fairly And Adequately Protect The Interests Of The Class.

B. The Requirements Of RCFC 23(b) Have Been Met.

C. The Appointment Of Class Counsel.

IV. CONCLUSION.

I. RELEVANT BACKGROUND.

The May 1, 2015 Liability Decision includes a detailed factual background and is necessary to understand the court’s findings regarding Just Compensation due in this Memorandum Opinion. *See St. Bernard Par.*, 121 Fed. Cl. at 695–715.

An evidentiary hearing was held in Washington, D.C. from November 18–20, 2013 (“DTR 1–801”) to assess the amount of Just Compensation due

a representative cross-section of the relevant property type in the St. Bernard Polder. Five of the properties are owned by St. Bernard Parish and the remaining six properties are owned by one or more of the other named [P]laintiffs. Some of the eleven properties are improved, while others are unimproved. The properties are devoted to a range and are located both inside and outside the federal and state/local levee systems. They are also dispersed throughout the developed areas of the [St. Bernard] Polder, including in both the Lower Ninth Ward and major communities of St. Bernard Parish (Arabi, Chalmette, Violet, Meraux, and Yscloskey).

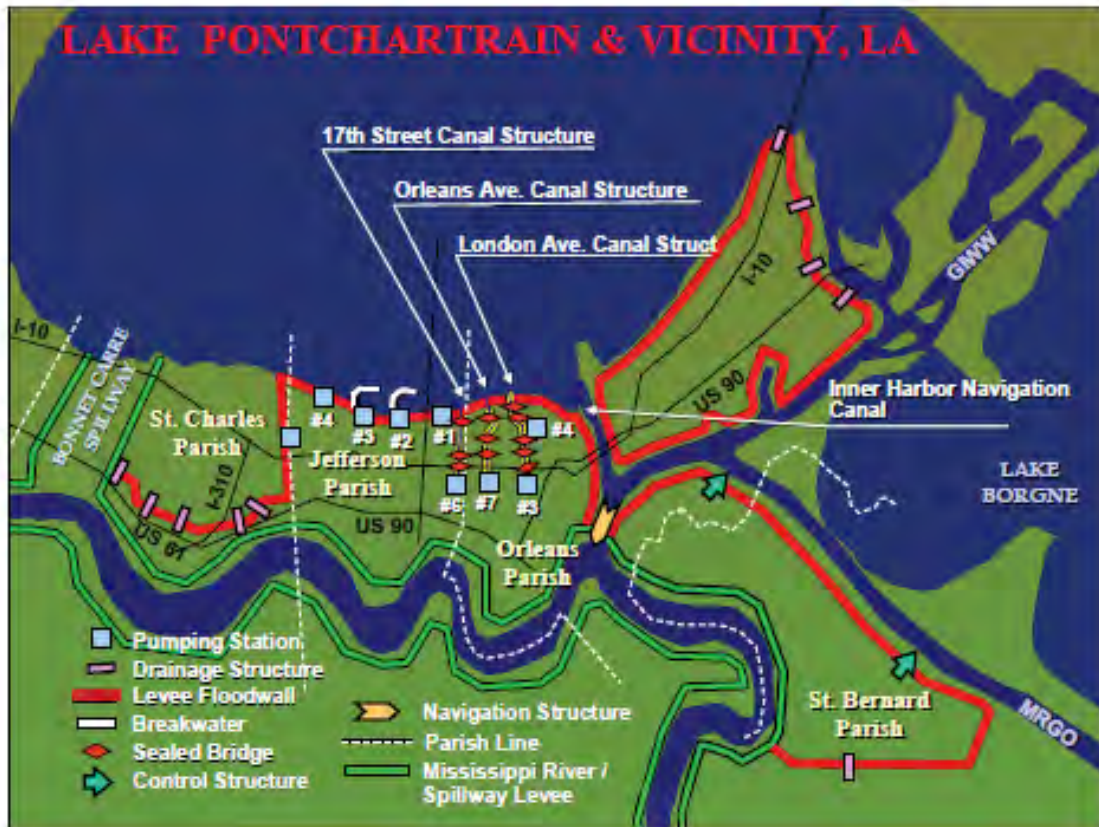
4/25/14 Plaintiffs’ Damages Phase Post-Trial Brief (“Pls. DBr.”) at 18; *see also* 4/25/14 Government Post-Trial Memorandum Of Contentions Of Fact And Law (“Gov’t DMem.”) at 8 (wherein the Government agreed that the court first should “proceed with a valuation trial with respect to eleven Trial Properties”).

The following chart, prepared by the Government, lists the owners, addresses, and description of each of the Trial Properties.

Plaintiff	Address	Type of Property
Tommaseo	3614-16 Fenelon St., St. Bernard Parish	Residential duplex
Bordelon	3024 Lakewood Dr., St. Bernard Parish	Residential
Steve's Mobile Home (Steve's RV)	3209 E. Judge Perez Hwy., St. Bernard Parish	Commercial
Parish Government	1818 Center St., St. Bernard Parish (StBP #1)	Playground, with community building
Parish Government	4 Acres of Land, St. Bernard Parish (StBP #2)	Playground, with gymnasium
Parish Government	Lots 110-115, St. Bernard Parish (StBP #3)	Vacant
Parish Government	6.58 Acres of Land, St. Bernard Parish (StBP #4)	Vacant
Parish Government	4119 E. Judge Perez Dr., St. Bernard Parish (StBP #5)	Fire Station
Robin	2316 Florissant Hwy., St. Bernard Parish (outside the federal levees)	Residential rental
PSSI	6325 Paris Rd., St. Bernard Parish	Industrial
Adams	2414 Deslonde St., Lower Ninth Ward	Residential

Gov't DMem at 9.

The following maps provide context to the court’s findings as to Just Compensation. The first map shows the location of the MR-GO and the MR-GO’s proximity to Lake Pontchartrain, Lake Borgne, and the Mississippi River.



Plaintiffs’ Trial Exhibit (“SPX”) SPX.0001, at I-31.

The second map shows the location of each of the Trial Properties and their proximity to: the MR-GO Reach 1 that intercepts with the Inter Harbor Navigation Canal (“IHNC”) to the east and eventually to the Mississippi River; and the MR-GO Reach 2 that runs adjacent and just west of Lake Borgne for approximately twenty-four miles into the Gulf of Mexico.



Direct Testimony of Steven D. Fitzgerald, P.E. (“Fitzgerald Direct”), ECF No. 240, at 13.

As a 2006 Senate Report on Hurricane Katrina concluded, the MR-GO

contributed to a potential “funnel” for storm surges emerging from Lake Borgne and the Gulf into the New Orleans area. . . . Prior to Hurricane Katrina, many warned that the potential funnel would accelerate and intensify storm surges emerging from Lake Borgne and the Gulf into the downtown New Orleans area. The funnel had been described as a “superhighway” for storm surges or the “Crescent City’s Trojan Horse” that had the potential to “amplify storm surges by 20 to 40 percent,” according to some storm modeling. Researchers at [Louisiana State University] believed that in creating this funnel, “the US Army Corps of Engineers had inadvertently designed an excellent storm surge delivery system—nothing less—to bring this mass of water with simply tremendous ‘load’—potential energy—right into the middle of New Orleans.”

SPX692 at 123–24 (footnotes omitted).

II. THE JUST COMPENSATION DUE FOR THE TEMPORARY TAKING OF THE TRIAL PROPERTIES.

A. Expert Testimony On Just Compensation.

Both parties proffered experts to advise the court about the amount of Just Compensation due for the temporary taking of each of the eleven Trial Properties. The credentials of the parties' experts, the objections of the opposing party, and the court's determination as to their qualifications and their methodology follow.

1. Plaintiffs' Expert, The Government's Objections, And The Court's Determination.

Plaintiffs proffered the testimony of Mr. Andrew Marshall, a Certified General Appraiser with more than 36 years of experience in valuing and appraising residential, commercial, and industrial properties, particularly St. Bernard Parish and the Lower Ninth Ward. 11/11/13 Written Direct Testimony of Andrew J. Marshall, Jr. ("Marshall Direct"), ECF No. 283, at 10–12; DTR 88–100 (Direct Examination of Marshall). Mr. Marshall also had experience in the construction and management fields and lived and worked in St. Bernard Parish for three decades. Marshall Direct at 11.

Mr. Marshall advised the court that appraisers of real property typically use three methods to determine value: a Sales Comparison Approach; a Cost Approach; or an Income Capitalization Approach. Marshall Direct at 25. In this case, Mr. Marshall used the Sales Comparison Approach to estimate the value of land by comparing recently sold properties and considering such factors as "physical [location], economic, and legal characteristics, and condition of the property at the time of sale." Marshall Direct at 25–26. Mr. Marshall also used a Cost Approach to estimate the fair market value of land and improvements by "adding the estimated value of the land to the current cost of constructing a reproduction or replacement for the improvements and then subtracting the amount of depreciation (*i.e.*, deterioration and obsolescence) in the structures from all causes." Marshall Direct at 25–26 (citing APPRAISAL INSTITUTE, THE APPRAISAL OF REAL ESTATE 47 (14th ed. 2013)). Mr. Marshall's Cost Approach also relied on the "Marshall & Swift" cost estimation service.² Marshall Direct at 26. Third, Mr. Marshall used an Income Capitalization Approach to estimate the fair market value of a property that produced rental income. Marshall Direct at 26–27. Mr. Marshall utilized one or more of these approaches to estimate the value of the land, improvements, and fair market rent lost for each of the eleven Trial Properties.

The Government objected to Mr. Marshall's qualifications, because he was not a member of the American Institute of Certified Appraisers and "had no prior experience preparing appraisal reports in inverse condemnation cases." Gov't DMem. at 98.³ The Government also lodged several objections to Mr. Marshall's estimates. First, Mr. Marshall relied on so-called "general

² The "Marshall & Swift" is an online cost estimating computer program developed by an individual with no relationship to Mr. Andrew Marshall. DTR at 298, 755–56.

³ At trial, the Government's counsel conceded that "most appraisers are not members of the [American] Appraisal Institute [of Certified Appraisers]." DTR at 177.

data” about trends in the New Orleans real estate market, although there is no record evidence that the “broad, market impacts resulting from passage of Hurricane Katrina over the region” were “directly related to the imposition of a temporary flowage easement over any Trial Property.” Gov’t DMem. at 101–03. Second, Mr. Marshall did not properly estimate the temporary flowage easement, because Plaintiffs’ counsel instructed him to value the fee interest of each of the Trial Properties, as if it were vacant between August 22, 2005 and June 1, 2011, well past the time the temporary flowage easement was abated. Gov’t DMem. at 104–05. Third, Mr. Marshall attributed all of the Trial Properties’ structural “improvement damage” to the MR-GO and related flooding, failing to consider other causes, including high winds. Gov’t DMem. at 106–07.⁴ Fourth, Mr. Marshall improperly assumed that all of the improvements on each of the Trial Properties were a total loss, without ascertaining the viability or costs of repair. Gov’t DMem. 107–08. And, the Government faulted Mr. Marshall for not considering depreciation in his “Improvement Loss” (Cost Approach) calculations, arguably inflating improvement values.⁵ Gov’t DMem. at 108–09 (citing Marshall Direct Figure 1); *see also* 1/4/16 Gov’t Resp. to Court (EFC No. 295), at 1–4.

The court has determined that Mr. Marshall’s credentials and experience qualify him as an expert real estate appraiser, with significant relevant experience in the New Orleans area. The court’s criticisms of Mr. Marshall’s methodology and the scope of his testimony are discussed in later sections of this Memorandum Opinion.⁶

⁴ On cross examination, Mr. Marshall pointed out that his damage assessment acknowledged that “some damage” was caused by wind. DTR at 125–26 (Cross Examination of Marshall) (referencing Marshall Direct at 10).

⁵ Plaintiffs respond that Mr. Marshall calculated both depreciated and non-depreciated replacement costs for improvements on all of the Trial Properties, except the two properties (Lots 110–115 and 6.58 acres of land) that had no improvements at the time of the taking (August 29, 2005). 1/4/16 Pls. Resp. To Court, ECF No. 294, at 1–2.

⁶ The Government also contends that Mr. Marshall’s testimony was biased, because he and his wife filed administrative claims in February 2007 against the Army Corps for injury caused by MR-GO related flooding of their property. Gov’t DMem. at 99–100 (citing DVX151). At trial, however, Mr. Marshall testified that he would not join in any class action certified by the court, although he could not speak for his wife. DTR at 131–37. The court is satisfied that Mr. Marshall’s expert opinion was not influenced by the existence of this administrative claim, since the Army Corps required all potential claimants to make a filing by August 25, 2007. *See* U.S. ARMY CORPS OF ENGINEERS, <http://www.mvn.usace.army.mil/About/Offices/OfficeofCounsel.aspx> (follow “Claims Information” then follow “Expand All” hyperlink) (last visited April 29, 2016) (“[Hurricane Katrina and Rita] claim[s] against the United States, in particular against the U.S. Army Corps of Engineers, must be presented, in writing, within two years from the date that the cause of action occurred.”); *see also id.* (“The U.S. Army Corps of Engineers has taken final action on the administrative claims against the Corps seeking damages related to Hurricanes Katrina and Rita. All claims have been denied.”).

2. The Government's Experts, Plaintiffs' Objections, And The Court's Determination.

a. Dr. Joannes J. Westerink, PhD.

Dr. Westerink was proffered by the Government as an expert in civil engineering, with specialties in hydraulics, coastal engineering, computational hydraulics, and computer modeling. 11/12/13 Westerink Direct ("Westerink Direct") at 1. The Government engaged Dr. Westerink to study flooding experienced at the Trial Properties by "the surge or specifically surface water elevations that are the *combined effect of the winds, atmospheric pressure, waves, riverine flow, and tides* that occurred during Hurricane Katrina." Westerink Direct at 5 (emphasis added). The Government's counsel, however, instructed Dr. Westerink to conduct his analysis, assuming seven scenarios. Westerink Direct at 9. The purpose of these scenarios was "to isolate and examine several alleged influences on flooding during Hurricane Katrina, including construction of the MR-GO, changes in the MR-GO's width over time, changes in wetland topography the relative impact of breaches in the IHNC Floodwall and the Reach 2 Levees." Gov't DMem. at 28 (citing Westerink Direct at 8).

The following chart shows each scenario posited, at the direction of the Government's counsel, and the assumptions made by Dr. Westerink.

Scenario	MRGO Status	Marsh Status	Levee Breaches	Description
A1 (Katrina Actual Event Conditions)	2005 pre-Katrina dimensions	2005 pre-Katrina conditions	Breaching occurring as during Katrina	Base case: Actual Katrina Hindcast
A2 (2005 MRGO/ 2005 Wetlands/ IHNC Breaches Only)	2005 pre-Katrina dimensions	2005 pre-Katrina conditions	IHNC Breaches Only	Base case reflecting levee breaches only in the IHNC floodwall
B1 (MRGO As-Designed/1956 Wetlands)	MRGO at its authorized dimensions as of completion in 1968	1956 Wetland conditions	Breaching occurring as during Katrina	Katrina impact absent bank erosion channel widening/ wetland degradation
B2 (MRGO As-Designed/1956 Wetlands/IHNC Breaches Only)	MRGO at its authorized dimensions as of completion in 1968	1956 Wetland conditions	IHNC Breaches Only	Katrina impact absent bank erosion channel widening/ wetland degradation reflecting IHNC breaches only
C (No MRGO/ 1956 Wetlands)	No MRGO	1956 Wetland conditions	Breaching occurring as during Katrina	Katrina impact without MRGO, and with 1956 wetland topography
D (No Federal Levees/2005 MRGO/2005 Wetlands)	2005 pre-Katrina dimensions	2005 pre-Katrina conditions	No levees along MRGO Reach 1 and 2	Katrina impact with MRGO but without levees along MRGO. MRGO and wetlands with 2005 conditions
E (No Federal Levees/No MRGO/1956 Wetlands)	No MRGO	1956 Wetland conditions	No levees along MRGO Reach 1 and 2	Katrina impact with no federal influence

Westerink Direct at 9 (Table 2).

The following chart shows the estimated peak water levels (per foot) under Dr. Westerink's scenarios for each of the Trial Properties.

Location	Scenario A1	Scenario A2	Scenario B1	Scenario B2	Scenario C	Scenario D	Scenario E
Adams	10.5	9.0	9.3	8.0	8.8	14.1	13.8
SBP #1	10.7	8.5	9.5	7.5	9.0	14.3	14.1
SBP #2	10.8	8.3	9.7	7.5	9.1	14.5	14.3
Tommaseo	11.0	7.1	10.1	6.3	10.3	14.7	14.5
SBP #3	11.3	6.2	10.6	5.4	11.0	15.0	14.9
SBP #4	11.5	4.6	10.8	4.1	11.5	15.6	15.5
Steve's RV	11.5	4.6	10.8	4.1	11.5	15.6	15.6
SBP #5	11.5	4.6	10.8	4.1	11.5	15.8	15.7
Bordelon	11.6	4.6	10.9	4.1	11.5	16.8	16.6
PSSI	11.7	4.0	11.0	3.8	11.6	14.8	14.9
Florissant	17.3	17.5	17.2	17.3	17.2	17.1	16.9

Westerink Direct at 17 (Table 3).

Importantly, Dr. Westerink also testified that:

- The IHNC North breach was initiated at 6:00 am on August 29 and developed to the full breach depth over a 30 minute duration.
- The IHNC South breach was initiated at 6:45 am and developed to the full breach depth over a 15 minute duration.
- The MRGO Reach 2 breaches were initiated at 5:45 am and developed to the full breach depths over a 2.5 hour duration[.]
 - As discussed, the timing and duration of the MRGO Reach 2 breaches modeled here are consistent with those adopted by the Plaintiffs' expert Dr. Kok in [*In re Katrina Canal Breaches Consol. Litig.*, 647 F. Supp. 2d 644, 654 (E.D. La. 2009) (“*Robinson*”), *aff'd sub nom. In re Katrina Canal Breaches Litig.*, 673 F.3d 381 (5th Cir. 2012), *opinion withdrawn on reh'g*, 696 F.3d 436 (5th Cir. 2012), *aff'd in part, rev'd in part sub nom. In re Katrina Canal Breaches Litig.*, 696 F.3d 436 (5th Cir. 2012) (*en banc*)], who modeled breaching of the MRGO Reach 2 levees from 5:00 am to 8:30 am on August 29, 2005.

- However, *I am not a geotechnical expert and express no opinion on the precise physical manner in which the Reach 2 levees failed, or upon the MRGO's alleged role in causing those levees to degrade.*

Westerink Direct at 54 (emphasis added); *see also* DTR at 498–99 (Westerink).

The court's determination of Dr. Westerink's testimony is discussed together with that of Mr. Steven D. Fitzgerald, P.E.

b. Mr. Steven D. Fitzgerald, P.E.

Mr. Fitzgerald was proffered by the Government as an expert in civil engineering, with a specialty in hydraulics, hydrology, and hydraulic and hydrology computer modeling. Fitzgerald Direct at 1. At the Government counsel's request, Mr. Fitzgerald conducted computer modeling to determine how "the [Trial Properties] flooded during Hurricane Katrina and how those properties would have flooded in several hypothetical scenarios," *i.e.*, those proposed by Dr. Westerink. Fitzgerald Direct at 2; DTR at 596 (Cross Examination of Fitzgerald). Based on his computer modeling, Mr. Fitzgerald concluded:

- The model accurately depicted the flooding of the St. Bernard Basin, closely matching the observed data collected after the storm.
- The Inner Harbor Navigation Canal (IHNC) floodwall breaches predominantly influenced the flooding of the Trial Properties located in the Lower Ninth Ward and just east of the Lower Ninth Ward in the portion of St. Bernard Parish west of Paris Road.
- Moving east in the St. Bernard Basin, the overtopping and breaching of the Reach 2 levee has a greater influence on flooding on the Trial Properties. This is particularly true of Trial Properties located east of Paris Road.
- If the Mississippi River Gulf Outlet (MRGO) had never been built, or if the MRGO had remained at its original design dimensions, the flooding of the Trial Properties east of Paris Road would have been virtually identical to the flooding that actually occurred on those properties during Hurricane Katrina. For the Trial Properties located west of Paris Road, the maximum water elevations would have been 1–3 feet lower.
- If the IHNC floodwalls breached during Hurricane Katrina, but the Reach 2 levee had not breached during the storm, the flooding experienced on the Trial Property in the Lower Ninth Ward would have been nearly identical to the flooding that actually occurred.

- The level of flooding on each Trial Property in each scenario depends on the ground and first-floor elevations of each property and the surrounding terrain.

Fitzgerald Direct at 2.

The Government argued that the collective testimony of Dr. Westerink and Mr. Fitzgerald was “indispensable” to the court’s damage assessment, because “it is the *only evidence* before the [c]ourt concerning flooding on those properties during Hurricane Katrina and the sole basis upon which this [c]ourt may distinguish between flooding that occurred as a result of the Reach 2 Levee breaches and flooding that occurred as a result of the IHNC Floodwall breach.” Gov’t DMem. at 56–57 (emphasis in original).

Plaintiffs objected to Dr. Westerink’s and Mr. Fitzgerald’s testimony, because neither were proffered as witnesses in the liability proceedings. Instead, they were introduced under the guise of damage experts to support “a new causation analysis” that the IHNC Floodwall breaches were the principal cause of flooding in the Lower Ninth Ward and western part of St. Bernard Parish. Pls. DBr. at 6, 42–46.⁷ In addition, their testimony is also contrary to the Government’s prior position in *Robinson*, wherein the Government conceded that “[l]evee degradation and breaching along the MRGO Reach 2 created a very large source of water which . . . eventually . . . flooded the entire Chalmette area[,] including the Lower Ninth Ward . . . and was by far the greatest source of water that entered the [St. Bernard] polder, greatly exceeding all other sources.” 7/21/09 United States’ Proposed Findings Of Fact (“U.S. *Robinson* FOF”), *Robinson*, No. 05-04182 (E.D. La 2009), ECF No. 19139, at ¶ 334 (emphasis added). And, the Government conceded in *Robinson*, that breaches along the IHNC Floodwall “did not impact the flooding of the St. Bernard basin[.]” U.S. *Robinson* FOF ¶ 347. In fact, Mr. Fitzgerald concluded in *Robinson* that “[t]he overtopping and breaches along MRGO had a significant effect on the maximum water service elevations compared to the IHNC breaches.” SPX2401 at 4; Plaintiffs’ April 13, 2012 Proposed Findings Of Fact (“Pls. LFOF”), ECF No. 184-1, at ¶ 259 (citing e-mail from Army Corps).

For these reasons, the court has determined that, although Dr. Westerink and Mr. Fitzgerald are experts in their respective fields, other than Scenario A1—Katrina Actual Event—their testimony was in direct conflict with the Government’s prior admissions and testimony in

⁷ During a November 5, 2013 telephone conference, the court denied Plaintiffs’ October 7, 2013 Motion *In Limine* to exclude the testimony of Dr. Westerink and Mr. Fitzgerald in the damages proceedings to allow the Government to make a record that the MR-GO was not responsible for any of the flooding on Plaintiffs’ properties. 11/5/13 Telephone Conference, ECF No. 237, at 4–5. But, as the May 1, 2015 Liability Decision determined, the overwhelming evidence from the Army Corps documents alone established the significant causative role that the MR-GO played in the increased storm surge flooding of Plaintiffs’ properties during Hurricane Katrina and “inevitably recurring” flooding during subsequent hurricanes and severe storms. *See St. Bernard Par.*, 121 Fed. Cl. at 739, 720–23.

Robinson and unreliable.⁸ In addition, Dr. Westerink's and Mr. Fitzgerald's opinions were biased by the Government's counsel's instructions that they not consider any scenario where the MR-GO was not built, never expanded, and was properly operated and maintained. Pls. DBr. at 42 (citing Plaintiffs' 4/25/16 Damages Phase Proposed Findings Of Fact ("Pls. DFOF"), ECF No. 263-2, at ¶¶ 231, 256). They were also instructed by the Government's counsel not to consider any scenario that removed the effects of the IHNC breaches to isolate the effect of the MR-GO breaches. DTR at 530 (Cross Examination of Westerink); *see also* Pls. DFOF at ¶ 259. Moreover, and likely offensive to the property owners in this case, Dr. Westerink was asked by the Government's counsel to posit Scenarios D and E that assumed *no levees* were built by the Army Corps, nominally to establish that Plaintiffs received some "benefit" from the levees that should be considered as an "offset" against Just Compensation due in this case.⁹ In any event, neither Dr. Westerink nor Mr. Fitzgerald posited an opinion as to why the MR-GO Reach 2 levees failed and the economic impact of this fact on the Trial Properties. Westerink Direct at 54; DTR at 661–62 (Redirect of Fitzgerald); DTR at 595–97 (Cross Examination of Fitzgerald).

c. James R. Danner, P.E.

Mr. Danner was a licensed civil and environmental engineer retained by the Government to prepare a scope of work for the eight privately-owned Trial Properties and proffered as an expert in civil engineering, specializing in storm damage assessment. 11/13/13 Direct Testimony of James R. Danner, Jr. ("Danner Direct"), ECF No. 243, at 2–8. Mr. Danner inspected these Trial Properties in April and May 2013, more than seven years after Hurricane Katrina, but testified that he only identified actual water marks from Hurricane Katrina on two of the Trial Properties. Danner Direct at 10. For each building, Mr. Danner "relied upon the analyses of Dr. Westerink and Mr. Fitzgerald for flood depth information" and "developed a likely scope of repair based on each of *those* damage assessments." Danner Direct at 11 (emphasis added).

Mr. Danner's reliance on the Westerink/Fitzgerald testimony is problematic for the reasons previously discussed. In addition, Mr. Danner was instructed by the Government's counsel that, if the flooding level reached four feet, he could allow for removal or replacement of improvements up to that level, but not above. DTR at 703–04 (Cross Examination of Danner). Although Mr. Danner testified that, when flood water was 3½ feet and above, he "gave the benefit of the doubt

⁸ *See* Pls. DBr. at 44–46 (listing other issues with Dr. Westerink's and Mr. Fitzgerald's modeling data and methodology).

⁹ After the Liability Decision, the Government continued to argue that Plaintiffs must "prove that the United States caused any levees to fail." DTR at 31. The court's temporary taking analysis, however, was not premised on the Army Corps' failure to build proper levees, as was the focus in the *Robinson* trial, but instead that the Army Corps' construction, expansions, operation, and failure to maintain the MR-GO caused increased *storm surge* that was exacerbated by a "funnel effect" during Hurricane Katrina and subsequent hurricanes and severe storms, causing flooding on Plaintiffs' properties that was "inevitably recurring." *St. Bernard Par.*, 121 Fed. Cl. at 731–38, 746.

to the Plaintiffs, but under the A-1 scenario he determined that flooding “never got above 2½ feet on the second floor.” DTR at 708 (Cross Examination of Danner).

On cross examination, Mr. Danner admitted that the Fenelon Street property, as modeled under the A-1 scenario by Westerink/Fitzgerald, showed flooding up to 6½ feet but, based on Mr. Danner’s personal observation of residual watermarks, he determined that the actual level was 8 feet. DTR at 710–11 (Cross Examination of Danner). The significance of this is that Westerink/Fitzgerald underestimated flooding levels, at least on some properties, that further reduced Mr. Danner’s estimated improvement costs. 12/21/15 Oral Argument Transcript (“12/21/15 TR”), ECF No. 291, at 15.

In addition, on cross examination, Mr. Danner was confronted about the difference between his approach and the Gypsum Association’s standard “Assessing Water Damage to Gypsum Board” (SPX2511) recommending: “Gypsum board that has been exposed to sewage or floodwaters must be replaced.” DTR at 706. Mr. Danner also was shown a Federal Emergency Management Agency (“FEMA”) document that recommended: “If the water level was less than 2½ feet, the wall material should be removed to a height of four feet to facilitate reinstallation of full sheets of drywall. If the water level is greater than 2½ feet, the wall material should be removed to a higher of eight feet or the ceiling junction, whichever is higher.” DTR at 707 (quoting SPX2511). Therefore, in addition to relying on Westerink/Fitzgerald’s unsubstantiated estimated flood levels, Mr. Danner disregarded industry and FEMA standards in preparing his scope of work.

For these reasons, the court has determined that Mr. Danner’s testimony was unreliable, subjective, and speculative.

d. Mr. Jean-Prieur Du Plessis, C.P.E.

Mr. Du Plessis was a Senior Cost Estimator with the firm of Madsen, Kneppers and Associates and proffered as an expert in construction cost estimating. 11/13/13 Direct Testimony of Jean Prieur Du Plessis, CPE (“Du Plessis Direct”), ECF No. 242, at 1, 6. Mr. Du Plessis was asked by the Government’s counsel to develop estimates of the probable cost to repair only the eight privately-owned Trial Properties and the probable cost to reconstruct three Trial Properties owned by St. Bernard Parish. Du Plessis Direct at 3. These estimates included both “hard costs,” *i.e.*, labor, materials, and equipment, plus “soft costs,” *i.e.* administrative costs. Du Plessis Direct at 22–23. Mr. Du Plessis’s estimates, however, relied on the scope of work prepared by Mr. Danner, who relied on the Westerink/Fitzgerald opinions. Du Plessis Direct at 13; DTR at 737 (Du Plessis testifying that he relied on information from Mr. Danner). Therefore, Mr. Du Plessis’s testimony suffered from the deficiencies of the Westerink/Fitzgerald and Danner opinions.

For these reasons, the court has determined that Mr. Du Plessis’s testimony was unreliable, subjective, and speculative.

e. Mr. Michael W. Truax, Sr.

Mr. Michael W. Truax, Sr. was a licensed appraiser in Louisiana. 11/14/13 Direct Testimony of Michael W. Truax, Sr., MAI, ASA (“Truax Direct”), ECF No. 245, at 5. Mr. Truax lived in St. Bernard Parish at some point and had twenty-five years of experience appraising numerous types of property in the New Orleans area. Truax Direct at 9, 11.

Mr. Truax appraised the privately-owned Trial Properties¹⁰ using a “Before and After Methodology,” in accordance with the Uniform Appraisal Standards for Federal Land Acquisition. Truax Direct at 13, 15–16; DVX131, at USSBA 000908 (defining “market value”).¹¹ But, Mr. Truax was instructed by the Government’s counsel to assume that the United States had “the right to inundate [all of the] Trial Properties with flood water for the period within which the easement [was] in force,” *i.e.*, from August 29, 2005 until September 26, 2005, other than the 2414 Deslonde Street, located in the Lower Ninth Ward, for which the easement terminated on May 8, 2006. Truax Direct at 19–20; *see also* DVX51 at 16. These dates reflect when the Government contends that local authorities allowed owners to return to their properties after Hurricane Katrina. DVX144 at TT001118–20.

Mr. Truax’s appraisal considered only two of the Westerink/Fitzgerald scenarios. Scenario A1 concerned the “value impact resulting from the flooding actually experienced.” Truax Direct at 18. In contrast, Scenario A2 was “[*b*]ased on the information . . . provided from other experts, [so that Mr. Truax’s] value analysis, depend[ed] in part, on *what assumptions* [Mr. Truax made] with respect to the reason various levees breached.” Truax Direct at 18 (emphasis added). Scenario A2 also reflected flooding only from the IHNC Floodwall breaches. Truax Direct at 18. Mr. Truax then deducted Scenario A2’s value differential from Scenario A1’s value differential to obtain results that reflected “the value impact related exclusively to flooding resulting from the Reach 2 Levee breaches.” Truax Direct at 18–19.

For vacant land and improvements, Mr. Truax used a sales comparable approach, adjusted for “physical features, and geographic, economic, and social factors,” reflected in an “adjustment grid.” Truax Direct at 25–26. The result was a “range of values, usually expressed as a dollar value per square foot.” Truax Direct at 26.¹² Then, based on “our understanding of the market, our review of all the dates, and our professional judgment, we determine a ‘before value’ estimate for the subject property.” Truax Direct at 26.

As for “improved institutional-use properties owned by St. Bernard Parish,” a “cost approach” was utilized, first estimating the new replacement costs of all existing property improvements from a variety of sources, and then accounting for “total accrued depreciation,” primarily by “market extraction, utilizing and breaking down the components of recent sales of comparable improved properties.” Truax Direct at 26–27. Mr. Truax, however, recognized that the cost approach he used to value such properties as churches, schools, and public buildings,

¹⁰ A second appraiser, Mr. Henry W. Tatje, III, MAI, appraised the three Trial Properties owned by St. Bernard Parish. Truax Direct at 15. At trial, however, the Government withdrew Mr. Tatje’s direct testimony. DTR at 790.

¹¹ Mr. Truax was not asked by the Government’s counsel to conduct an appraisal, pursuant to the Uniform Appraisal Standards For Federal Acquisition (Dec. 20, 2000) (known as the “Yellow Book”). Pls. DBr. at 62.

¹² Mr. Truax’s improvement analysis also relied on Mr. Du Plessis’s “estimate[d] cost of structural repairs necessary.” Truax Direct at 21. But, as previously discussed, Mr. Du Plessis’s analysis relied on the Westerink/Fitzgerald and Mr. Danner opinions.

“generally has limited applicability as a primary valuation method due to the limited reliance usually placed upon it by market participants.” Truax Direct at 27–28. Therefore, Mr. Truax decided, instead, to use a Gross Income Multiplier Analysis to determine the value of 3614-16 Fenelon, because it was an income producing property “applying (multiplying) a market-derived multiplier [derived from recent past comparable sales] to the market-supported gross rental income that the subject property should produce.” Truax Direct at 28.

Mr. Truax’s “Before Value” estimate was based on “a correlation, or a final determination . . . weighing the inherent strengths and weaknesses of the methods and data used in each approach to determine which, if any, should be weighted most heavily in the final analysis.” Truax Direct at 28. Mr. Truax’s “After Value” estimate was determined by the “(1) damage/destruction of improvements as a result of Hurricane Katrina related flooding and (2) loss of use of the property during the easement period.” Truax Direct at 29. To ascertain “the actual value of the flood damages done to buildings and improvements on the Trial Properties that had structures on them,” Mr. Truax was provided reports by Mr. Danner who “estimated the cost to repair each of the subject properties under different flood damage scenarios.” Truax Direct at 29. Included in Mr. Truax’s “After Value” estimate was a 20 percent upward adjustment for “entrepreneurial profit,” *i.e.*, “the market-recognized profit incentive required by investors and developers to undertake the purchase and repair of such properties.” Truax Direct at 29. Nevertheless, Mr. Truax concluded that, for some properties, “cost of repairs plus entrepreneurial profit exceeded the contributory value of the buildings; in others, the repair costs plus entrepreneurial profit [was] less than the contributory value of the buildings.” Truax Direct at 30.

As for the fair market rent lost, Mr. Truax determined that it was appropriate to use a rate of 10 percent per annum of the market value of a property *after* flooding, as “multiplied by the portion of a year that the temporary flowage easement was imposed” on an individual property. Truax Direct at 30–31; *see also* 12/21/15 TR at 18–19.

The court has determined that Mr. Truax was an expert in real estate appraisals in the New Orleans area and that his “Before Value” Scenario 1 appraisal was the most useful to compare with that of Mr. Marshall’s, as discussed herein, but Mr. Truax’s decision to estimate the fair market rent lost *after* August 29, 2005, as instructed by the Government’s counsel, was contrary to law that Just Compensation must be determined at the time of the taking.

B. The Court’s Determination.

1. Governing Precedent.

“Just Compensation” has been defined by the United States Supreme Court as the “value of [private property of which the owner] has been deprived of, and no more.” *Bauman v. Ross*, 167 U.S. 548, 574 (1897). Stated differently, the owner of the private property is entitled to be restored to “as good a position pecuniarily as if his property had not been taken. He must be made whole but is not entitled to more.” *Olson v. United States*, 292 U.S. 246, 255 (1934); *see also Boston Chamber of Commerce v. City of Boston*, 217 U.S. 189, 195 (1910) (“[The Constitution] merely requires that an owner of property taken should be paid for what is taken from him. It deals with persons, not with tracts of land. And the question is, What has the owner lost? not, What has the taker gained?”). But, “the quantum of damages” must “be shown to a reasonable

approximation,” *i.e.*, “estimated with a fair degree of accuracy.” *Arkansas Game & Fish Comm’n v. United States*, 736 F.3d 1364, 1379 (Fed. Cir. 2013) (on remand) (internal quotations and citations omitted).

2. The Evidence Supporting Just Compensation.

a. The Value Of The Underlying Land On August 29, 2005.

The court has determined that Plaintiffs’ land was not lost nor destroyed as a result of the Army Corps’ temporary taking, so that no Just Compensation is due for the fee simple value. *See United States v. Petty Motor Co.*, 327 U.S. 372, 377 (1946) (“[J]ust compensation is the value of the [property] interest taken.”); *see also Otay Mesa Prop., L.P. v. United States*, 670 F.3d 1358, 1368 (Fed. Cir. 2012) (“Compensation should be based on an assessment of precisely what the government takes from a landowner.”).

It is a matter of public record, as Plaintiffs’ expert Mr. Marshall testified, that the value of land in St. Bernard Parish and the Lower Ninth Ward substantially was diminished after Hurricane Katrina and subsequent hurricanes and severe storms, but other factors contributed to that loss—most notably the financial crisis in the housing market that began in 2008.

For these reasons, the court declines to award Plaintiffs compensation for the fee simple value of their land or compensation for the diminished value, as too speculative to be “estimated with a fair degree of certainty.” *Arkansas Game & Fish*, 736 F.3d at 1379.

b. The Cost Of Replacement Improvements On The Non-Governmental Trial Properties.

Plaintiffs’ expert, Mr. Marshall, utilized a Cost Approach, Sales Approach, and Income Capitalization Approach to estimate the cost of replacement improvements on the Trial Properties.¹³ Marshall Direct at 65. Then, he used his professional judgment to reconsider the different estimates. Marshall Direct at 68. This approach appeared to the court to be unnecessarily complex and confusing, since Mr. Marshall explained at the beginning of his testimony that the Cost Approach “typically [was] used to value only the improvements to the land.” Marshall Direct at 26.

Mr. Truax used a Cost Approach to estimate “the replacement cost new of all existing property improvements,” utilizing “professional cost estimators, actual cost bids from building contractors, published data from other reliable cost services and similar sources.” Truax Direct at

¹³ The United States Court of Appeals for the Federal Circuit has endorsed the use of all three appraisal methods utilized by the parties’ experts in this case, *i.e.*, comparable sales; replacement cost; and income capitalization. *See Seravalli v. United States*, 845 F.2d 1571, 1573–75 (Fed. Cir. 1988) (“We are unwilling to restrict the trial courts to any single basis for determining fair market value.”); *see also Snowbank Enters. Inc. v. United States*, 6 Cl. Ct. 476, 486 (1984) (“[U]nder some circumstances, the replacement cost method may be used to establish fair market value, particularly when evidence of comparable sales is lacking and the income capitalization approach is inapplicable.”).

22–23. Then, Mr. Truax estimated and deducted total accrued depreciation. Truax Direct at 23. Mr. Truax, however, relied on Mr. Du Plessis’s “cost of structural repair necessary under the different hydrological scenarios,” and on Mr. Danner, based on assumptions relied on Westerink/Fitzgerald modeling. Truax Direct at 17; 12/21/15 TR 3–16.

Since the court was not satisfied with either of Mr. Marshall’s or Mr. Truax’s estimates, the court made an effort to harmonize the parties’ differing positions and how their experts accounted for depreciation¹⁴ to ascertain a “reasonable approximation” of the cost of improvements on the non-governmental Trial Properties.

3614-16 Fenelon Street (Residential Duplex Rental).

Mr. Marshall estimated the “cost approach” value for improvements on 3614-16 Fenelon Street as \$114,000. Marshall Direct at 68. Mr. Truax estimated the “before value” cost of improvements on this property as \$128,000. Truax Direct at 33.

Since the difference between the \$114,000 and \$128,000 estimates cannot be readily reconciled, based on the record, the court has determined to split the difference, finding that \$121,000 is a “reasonable approximation” of the cost of improvements on 3614-16 Fenelon Street, as of August 29, 2005. *See Arkansas Game & Fish*, 736 F.3d at 1379.

3024 Lakewood Drive (Residential).

Mr. Marshall estimated the “cost approach” value of the improvements on 3024 Lakewood Drive as \$186,200. Marshall Direct at 69, 71. Mr. Truax estimated the “before value” cost of the improvements on this property as \$139,250. Truax Direct at 38.

Since the difference between the \$186,200 and \$139,250 estimates cannot be readily reconciled, based on the record, the court has determined to split the difference, finding that \$162,725 is a “reasonable approximation” of the cost of improvements on 3024 Lakewood Drive, as of August 29, 2005. *See Arkansas Game & Fish*, 736 F.3d at 1379.

3209 East Judge Perez Drive (Commercial).

Mr. Marshall estimated the “cost approach” value of the improvements on 3209 East Judge Perez Drive as \$580,500, but \$536,000 as depreciated. Marshall Direct at 81. Mr. Truax estimated the “before value” cost of the improvements on the property as \$346,000, including both building and site improvements. Truax Direct at 43.

Since the difference between the \$536,000 and \$346,000 estimates cannot be readily reconciled, based on the record, the court has determined to split the difference, finding that \$441,000 is a “reasonable approximation” of the cost of improvements on 3209 East Judge Perez Drive, as of August 29, 2005. *See Arkansas Game & Fish*, 736 F.3d at 1379.

¹⁴ Compare 1/14/16 Pls. Resp. to Court Inquiries, EFC No. 294, at 1–4, with 1/4/16 Gov’t Resp. to Court Inquiries, ECF No. 295, at 1–8.

2316 Florissant Highway (Residential) (Robin).

Mr. Marshall estimated the “cost approach” value of the improvements on 2316 Florissant Highway, prior to August 29, 2005 as \$151,880. Marshall Direct at 74. Mr. Truax estimated the “before value” cost of the improvements on 2316 Florissant Highway, based on a sales comparative approach as \$55,500. Truax Direct at 73.

Since the difference between the \$151,880 and \$55,500 estimates cannot be readily reconciled, based on the record, the court has determined to split the difference, finding that \$103,690 is a “reasonable approximation” of the cost of improvements at 2316 Florissant Highway, as of August 29, 2005, particularly since the insurance replacement cost was estimated at approximately \$126,840. SPX2218 at 51; *see also Arkansas Game & Fish*, 736 F.3d at 1379.

6325 Paris Road (Industrial).

Mr. Marshall estimated the “cost approach” value of the improvements on 6325 Paris Road, prior to August 29, 2005, as: \$154,685 for the front building; \$390,804 for the back building; \$12,000 for the fence; \$30,300 for the boat slip, or approximately \$587,700, or as depreciated, \$514,000. Marshall Direct at 85–86. Mr. Truax estimated the “before value” cost of the improvements on 6325 Paris Road, based on comparable sales that ranged from \$11.80 per square foot to \$30.86 per square foot, but decided the property should be valued at \$30.00 per square foot or \$223,000. Truax Direct at 77–78. Then, Mr. Truax applied a 50% depreciation to the “estimated replacement costs for site improvements” to arrive at \$150,000 value of site contributions. Truax Direct at 78. Together, Mr. Truax estimated the total value of improvements as \$373,000. Truax Direct at 78.

Since the difference between the \$514,000 and \$373,000 estimates cannot be readily reconciled, based on the record, the court has determined to split the difference, finding that \$443,500 is a “reasonable approximation” of the cost of improvements at 6325 Paris Road, as of August 29, 2005. *See Arkansas Game & Fish*, 736 F.3d at 1379.

2414 Deslonde Street (Residential).

Mr. Marshall estimated the “cost approach” value of the improvements at 2414 Deslonde Street, prior to August 29, 2005 as \$97,935. Marshall Direct at 75–76. Mr. Truax estimated “before value” cost improvements as \$82,000. Truax Direct at 83.

Since the difference between \$97,935 and \$82,000 cannot be readily reconciled, based on the record, the court has determined to split the difference, finding that \$89,967.50 is a “reasonable approximation” of the cost of improvements at 2414 Deslonde Street, as of August 29, 2005. *See Arkansas Game & Fish*, 736 F.3d at 1379.

The following chart summarizes the court's findings as to the cost of replacement improvements on the non-governmental Trial Properties, as of August 29, 2005.

COURT EXHIBIT A

Property	Address	Use	Cost of Replacement Improvements on August 29, 2005
1. Tommaseo	3614-16 Fenelon St.	Residential Rental	\$121,000
2. Bordelon	3024 Lakewood Dr.	Residential	\$162,725
3. Steve's RV	3209 E. Judge Perez Dr.	Commercial	\$441,000
4. Robin	2316 Florissant Hwy.	Residential Rental	\$103,690 ¹⁵
5. PSSI	6325 Paris Rd.	Industrial	\$443,500
6. Adams	2414 Deslonde St.	Residential	\$89,967.50

c. Fair Market Rent Lost By The Owners Of Non-Governmental Property.

The Government's expert, Mr. Truax, testified that Plaintiffs are entitled to the fair market rent lost during the period of the temporary taking and estimated that 10 percent of a property's net worth was an appropriate metric to calculate an annual fair market rent, based on a return to value that generally runs between 8.5–10 percent for improved properties. 9/17/13 Truax Deposition ("Truax Dep."), ECF No. 316-1, at 61–64. But, Mr. Truax applied that rate to the value of the property *after* the taking, rather than before. Truax Direct at 26–27.

Mr. Marshall informed the court that rental value data is "not recorded and retained in the same comprehensive manner as sales data." Marshall Direct at 66–67. Therefore, Mr. Marshall considered the fair market rent, as of 2013, for comparables and made additional calculations to ascertain a rental rate, based on the Income Approach. Marshall Direct at 67. Then, Mr. Marshall "reconciled" his estimate with a fully developed property "Cost Approach," "Sales Comparison Approach," and "Income Approach." Marshall Direct at 68.

Again the court was not satisfied with either Mr. Truax's or Mr. Marshall's estimates, but made an effort to harmonize their estimates, based on a land component and the replacement improvements component of only the privately-owned Trial Properties before the temporary taking, *i.e.*, as of August 29, 2005.

¹⁵ Independent insurance of the estimates replacement cost of improvements on this property was \$126,840. SPX2218 at 16, 51.

i. The Land Component.

3614-16 Fenelon Street.

Mr. Marshall estimated that the 2005 land value of 3614-16 Fenelon Street was \$52,500, based on “four comparable properties [that] were the most recent verifiable sales that indicated a reliable value date as of 2005.” Marshall Direct at 62–63. Mr. Truax, however, relied on three comparable sales between November 2002 and August 2005 yielding a sales range of \$1.82–\$4.19 per square foot, a value much lower in range than Mr. Marshall’s \$10.14–\$10.82 per square foot estimate, even though this amount included depreciation. *Compare* Truax Direct at 30, with Marshall Direct at 62. Mr. Truax made a further qualitative adjustment, based on the location, size, and “other factors,” that yielded a \$3.40 per square foot or \$17,000 land value. Truax Direct at 31.

Since the difference between the \$52,500 and \$17,000 estimates cannot be readily reconciled, based on the record, the court has determined to split the difference finding that \$34,750 is a “reasonable approximation” of the land value for 3614-16 Fenelon Street, as of August 29, 2005. *See Arkansas Game & Fish*, 736 F.3d at 1379.

3024 Lakewood Drive (Bordelon).

Mr. Marshall estimated that the land value of 3024 Lakewood Drive, based on the sale price of six vacant lots in 2005, yielded a \$3.47 per square foot, or a \$25,000 land value. Marshall Direct at 70. In contrast, Mr. Truax considered the sales of the three vacant properties between May 2003 and October 2004, yielding a range of \$3.00–\$4.17 per square foot, to which he made a “qualitative adjustment,” based on location, size, and “other factors,” that yielded a \$3.44 per square foot or a \$24,750 land value amount. Truax Direct at 37.

Since the difference between the \$25,000 and \$24,750 estimates cannot be readily reconciled, based on the record, the court has determined to split the difference, finding that \$24,875 is a “reasonable approximation” of the land value for 3024 Lakewood Drive, as of August 29, 2005. *See Arkansas Game & Fish*, 736 F.3d at 1379.

3209 East Judge Perez Drive.

Mr. Marshall estimated that the land value of 3209 East Judge Perez Drive, based on the sale price of six lots in 2005, yielded a \$5.00 per square foot or a \$599,000 land value. Marshall Direct at 80. In contrast, Mr. Truax evaluated the sale of six lots between July 1999 and December 2003, yielding a range of \$3.91–\$6.00 per square foot, to which he made a “qualitative adjustment,” based on location, size, and “other factors,” to find a \$5.35 per square foot amount or a \$656,000 land value. Truax Direct at 42.

Since the difference between the \$599,000 and \$656,000 estimates cannot be readily reconciled, based on the record, the court has determined to split the difference, finding that a \$627,500 is a “reasonable approximation” of the land value for 3209 East Judge Perez Drive, as of August 29, 2005. *See Arkansas Game & Fish*, 736 F.3d at 1379.

2316 Florissant Highway (Robin).

Mr. Marshall evaluated 2316 Florissant Highway, owned by Mr. Brad Robin, based on the price of the sale of three comparable properties, but concluded that the “highest of the three sales prices . . . was atypically high.” Marshall Direct at 73–74. Mr. Marshall then evaluated the improvements on the property that included “housing facilities typically rented to sport fishermen,” and estimated the land value to be \$25,000. Marshall Direct at 74. Mr. Truax examined three sales of vacant land between May 2002 and August 2004, yielding a range of \$0.19–\$0.55 per square foot amounts. Truax Direct at 72. Because these properties included some undeveloped wetlands, Mr. Truax decided to use a “Comparative Metric” reflecting a dollar per square foot frontage, ranging from \$239 to \$349 per square foot, and utilized a \$325 per frontage foot to arrive at a \$19,500 land value. Truax Direct at 72–73.

Since the record does not reflect how Mr. Marshall arrived at his estimate, the court has determined that \$19,500 is a “reasonable approximation” of the land value for 2316 Florissant Highway, as of August 29, 2005. *See Arkansas Game & Fish*, 736 F.3d at 1379.

6325 Paris Road (Port Ship Service, Inc.).

Mr. Marshall evaluated 6325 Paris Road, which was a ship repair facility, based on the price of six sales of commercial or industrial property in 2005, yielding a \$5.00 per square foot or a \$305,000 land value. Marshall Direct at 84–85. Mr. Truax examined five sales between May 2000 and May 2004, yielding a range of \$2.15–\$6.59 per square foot amounts and arrived at a \$3.50 per square foot amount, to which he made a “qualitative adjustment,” based on location, size, and “other factors,” to arrive at a \$390,000 land value. Truax Direct at 77.

Since the difference between the \$305,000 and \$390,000 estimates cannot be readily reconciled, based on the record, the court has determined to split the difference finding that \$347,500 is a “reasonable approximation” of the land value for 6325 Paris Road, as of August 29, 2005. *See Arkansas Game & Fish*, 736 F.3d at 1379.

2414 Deslonde Street (Adams).

Mr. Marshall evaluated 2414 Deslonde Street, owned by Henry and Gwendolyn Adams, based on the price of three sales in 2005, yielding a range of \$2.02–\$2.80 per square foot amounts, and arrived at a \$2.41 per square foot or an \$8,800 land value. Marshall Direct at 75–76. Mr. Truax examined three sales of vacant land between March 2005 and July 2005, yielding a range of \$2.02–\$4.86 per square foot, including depreciation, to which he made a “qualitative adjustment,” based on location, size, and “other factors,” to arrive at a \$2.19 per square foot or a \$16,000 land value. Truax Direct at 82.

Since the difference between the \$8,800 and \$16,000 estimates cannot be readily reconciled, based on the record, the court has determined to split the difference finding that \$12,400 is a “reasonable approximation” of the land value for 2414 Deslonde Street, as of August 29, 2005. *See Arkansas Game & Fish*, 736 F.3d at 1379.

ii. The Combined Land Component And Cost Of Replacement Improvements Component.

The court has determined that Just Compensation does not apply to a fair market rent for St. Bernard Parish since those properties were held and used for public purposes. Therefore, the following chart summarizes the court's findings as to the land component and the cost of replacement improvements component only for each of the non-governmental Trial Properties, as of August 29, 2005. To determine the fair market rent, the court added the land component and cost of replacement improvements component together, then multiplied by 8.5 percent to ascertain the market value.¹⁶ Next, this amount was divided by 12 to obtain the monthly fair market rent.

COURT EXHIBIT B

Property	Address	Use	Land Component	The Cost Of Replacement Improvements Component	Monthly Fair Market Rent
Tommaseo	3614–16 Fenelon St.	Residential Rental	\$34,750	\$121,000	\$1,103
Bordelon	3024 Lakewood Dr.	Residential	\$24,875	\$162,725	\$1,329
Steve's RV	3209 E. Judge Perez Dr.	Commercial	\$627,500	\$441,000	\$7,569
Robin	2316 Florissant Hwy.	Residential Rental	\$19,500	\$103,690	\$873
PSSI	6325 Paris Rd.	Industrial	\$347,500	\$443,500	\$5,603
Adams	2414 Deslonde St.	Residential	\$12,400	\$89,967.50	\$725

iii. The Relevant Temporary Taking Period.

There also was a significant difference between the parties about the appropriate time period and methodology to determine the fair market rent.

Plaintiffs contend that the relevant time period should be from August 2005 until June 2011, the date when there was substantial completion of the Hurricane and Storm Damage Risk Reduction System. Pls. DBr. at 83. The Government contends that the relevant time period was August 29, 2005 to September 26, 2005, for all the Trial Properties, other than 2414 Deslonde Street in the Lower Ninth Ward on which the temporary taking ended on May 8, 2006. Gov't

¹⁶ Mr. Truax and Mr. Tatje “determined that a rate of 10 percent per annum of the market value of the property for a temporary ‘loss of use’ determination is appropriate.” Truax Direct at 26. During his deposition, however, Mr. Truax testified that “market rent [is] based upon a return to value, and those generally ranged from the 8 and a half to 10 percent kind of returns.” Truax Dep. at 64. The court has elected to use the lower 8.5 percent value.

DMem. at 13 (citing Truax Direct at 15, 16 (citing DVX144) (St. Bernard Parish Government Newsletter)). The court rejected both of these approaches.

On August 29, 2005, St. Bernard Parish and the Lower Ninth Ward of New Orleans were inundated by increased storm surge flooding from breaches *first* from the MR-GO Reach 2 levee at 5:45 a.m. and then the North IHNC levee at 6:00 a.m., followed by the South IHNC levee at 6:45 a.m. Westerink Direct at 54; *see also St. Bernard Par.*, 121 Fed. Cl. at 710–11. On September 24, 2005, Hurricane Rita flooded a significant portion of the St. Bernard Parish a second time, as well as properties outside, but adjacent to, what little remained of the federal levee system. *St. Bernard Par.*, 121 Fed. Cl. at 713. On September 1, 2008, Hurricane Gustav landed in the New Orleans area, with additional increased storm surge and breaches near the IHNC in the Shell Beach and Delacroix areas. *Id.* at 714. Two weeks later, on September 13, 2008, property owners at Delacroix, Yscloskey, and Shell Beach also experienced storm surge flooding during Hurricane Ike. *Id.* As a 2008 FEMA study recognized: “[d]amaged levees decimated wetlands, and the still-open MR-GO has left the Parish vulnerable to future storms.” *Id.* In sum, it was because of “inevitably recurring” flooding after Katrina that the Army Corps decided to close the MR-GO permanently in July 2009. *Id.* at 714–15.

Although local authorities may have allowed some property owners to visit or return to their properties on September 30, 2005, after Hurricane Katrina, it is inconceivable that there was a rental market for any of these properties, not only because of “inevitably recurring” post-Katrina flooding, but the fact that roads, sewers, utilities, police, and other local governmental services were not restored until the end of 2008¹⁷ and the fact that MR-GO was not closed until six months later on July 1, 2009. Truax Dep. Ex. 7.

¹⁷ On June 2, 2006, although the Army Corps accepted responsibility for the condition of the levees, it reported that New Orleans was still at risk. Truax Dep. Ex. 7, at TT001121 (“Teaching The Levees” webpage, available at: http://teachingthelevees.org/?page_id=281). On March 31, 2007, the *New York Times* reported a delay in the rebuilding of public works damaged and destroyed by Hurricane Katrina, including delays in rebuilding schools, fire stations, public water systems, roads and libraries. Truax Dep. Ex. 7, at TT001123 (“Teaching The Levees” webpage, available at: http://teachingthelevees.org/?page_id=281); *see also* Leslie Eaton, *Gulf Hits Snags in Rebuilding Public Works*, N.Y. TIMES (Mar. 31, 2007), http://www.nytimes.com/2007/03/31/us/31fema.html?_r=0.

On July 24, 2007, the *New York Times* reported that only three of the seven hospitals in operation prior to Hurricane Katrina were able to restore services. Truax Dep. Ex. 7, at TT001124 (“Teaching The Levees” webpage, available at: http://teachingthelevees.org/?page_id=281); *see also* Leslie Eaton, *New Orleans Recovery Is Slowed By Closed Hospitals*, N.Y. TIMES (July 24, 2007), <http://www.nytimes.com/2007/07/24/us/24orleans.html>.

On January 10, 2008, the Governor of the State of Louisiana extended the National Guard presence in New Orleans. Truax Dep. Ex. 7, at TT001125 (“Teaching The Levees” webpage, available at: http://teachingthelevees.org/?page_id=281). On June 20, 2008, the Governor announced that at least 200 National Guard would remain in New Orleans through 2008 for law enforcement duties, until the New Orleans Police Department could rebuild. Truax Dep. Ex. 7, at

For these reasons, the court has determined that an element of Just Compensation due in this case should include the fair market rent lost on private non-governmental property. *See Yuba Nat. Res., Inc. v. United States*, 904 F.2d 1577, 1580–81 (Fed. Cir. 1990) (“In the case of a temporary taking . . . since the property is returned to the owner when the taking ends, the Just Compensation to which the owner is entitled is *the value of the use of the property* during the temporary taking, *i.e.*, the amount which the owner lost as a result of the taking.”) (emphasis added). The court also has determined that the fair market rent lost should be calculated from September 1, 2005 until June 30, 2009.¹⁸

iv. Fair Market Rent Lost.

The following chart summarizes the court’s findings as to the fair market rent lost by the owners of the non-governmental Trial Properties from September 1, 2005 until June 30, 2009.

COURT EXHIBIT C

Property	Address	Use	Monthly Fair Market Rent	Fair Market Rent Lost For 42 Months
Tommaseo	3614–16 Fenelon St.	Residential Rental	\$1,103	\$46,326
Bordelon	3024 Lakewood Dr.	Residential	\$1,329	\$55,818
Steve’s RV	3209 E. Judge Perez Dr.	Commercial	\$7,569	\$317,898
Robin	2316 Florissant Hwy.	Residential Rental	\$873	\$36,666
PSSI	6325 Paris Rd.	Industrial	\$5,603	\$235,326
Adams	2414 Deslonde St.	Residential	\$725	\$30,450

TT001127 (“Teaching The Levees” webpage, available at: http://teachingthelevees.org/?page_id=281).

¹⁸ Although Plaintiffs likely evacuated their property prior to August 29, 2005, the court has decided to use September 1, 2005 as the start date to avoid calculating the relevant time period in days rather than months. As for the end date, the court’s Liability Decision determined that the MR-GO was closed by the Army Corps of Engineers in July 2009, based on the Army Corps’ website (*see St. Bernard Par.*, 121 Fed. Cl. at 715), but the court subsequently found conflicting evidence in the record that the MR-GO did not close permanently until October 21, 2009. Truax Dep. Ex. 7, at TT 001132 (“Teaching The Levees” webpage, available at: http://teachingthelevees.org/?page_id=281). Nevertheless, the court considers June 30, 2009, as an appropriate end date for the temporary taking.

d. Interest.

In *Albrecht v. United States*, 329 U.S. 599 (1947), the United States Supreme Court held:

[S]omething more than fair market value is required to make the property owner whole, to afford him ‘just compensation.’ This additional element of compensation has been measured in terms of reasonable interest. Thus, ‘just compensation’ in the constitutional sense, has been held, absent a settlement between the parties, to be fair market value at the time of [the] taking plus ‘interest’ from that date to the date of payment.

Id. at 602.

The court has determined that owners of real property zoned and/or lawfully used as residential property and “commercial” and “industrial” real property are entitled to a fair market rental value, as set forth in Court Exhibit B, but since the governmental properties owned by St. Bernard Parish had no rental value, the court has not determined a monthly fair market rental rate for any of the five Trial Properties owned by St. Bernard Parish.

Since the appropriate amount of interest for a Fifth Amendment Takings Clause claim has not been established by statute, the Government suggests that the Declaratory Takings Act, 40 U.S.C. § 3116 (“DTA”), is an appropriate benchmark, because Congress specifically amended the DTA in 1986 to establish a uniform method for calculating compensation in condemnation cases. 5/30/14 Government Response To Plaintiffs’ Damages Phase Post-Trial Brief. That rate calculates interest equal to the “weekly average one-year constant maturity Treasury yield, as published by the Board of Governors of the Federal Reserve System, for the calendar week preceding the beginning of each additional year.” 40 U.S.C. § 3116(a)(2).

Plaintiffs counter that the DTA rate is not relevant and where, as here, Just Compensation is not paid until many years after the taking, an award of compounded interest rate is required, such as Moody’s Composite Index of Yields in Add Long Term Corporate Bonds (“Moody’s rate”). Pls. DBr. at 87–88. This rate has fluctuated from 3.67% to 5.63% from 2005 to 2013. Pls. DBr. at 88 n.40. In the alternative, Plaintiffs suggest that the court adopt the tax overpayment rate, set forth in 26 U.S.C. § 6621(b)(3). Pls. DBr. at 89 n.42.

Although several cases of the United States Court of Federal Claims have awarded the Moody’s rate,¹⁹ since the court has determined that Plaintiffs are entitled to the lost rental value of

¹⁹ See, e.g., *Pitcairn v. United States*, 547 F.2d 1106, 1120–24 (Ct. Cl. 1976) (adopting the trial court’s use of Moody’s interest rates in a Takings Clause case, where “the parties . . . presented sufficient evidence” to the court to enable an “informed and reasoned determination” as to the appropriate amount of Just Compensation); see also *Tektronix, Inc. v. United States*, 575 F.2d 832, 836 (Ct. Cl. 1978) (approving the use of a Moody’s interest rate in a patent infringement case, “unless a party affirmatively demonstrates that a different rate should be applied”); *Georgia-Pacific Corp. v. United States*, 640 F.2d 328, 365–67 (Ct. Cl. 1980) (relying on *Tektronix*, in taking judicial notice of Moody’s Index in a Takings Clause case, where the facts demonstrated that such use “constitutes just compensation”); *Biery v. United States*, 2012 WL 5914521, at *1–5 (Fed. Cl.

the property for a substantial period of time, the court already has taken the “delayed payment” into consideration. In addition, it was not until the United States Supreme Court issued its decision in *Arkansas Game & Fish Comm’n v. United States*, 133 S. Ct. 511 (2012), that a temporary taking by flooding definitively was recognized. Under these circumstances, the court ascertains no reason for requiring an award of interest at a rate other than a compound rate. *See Arkansas Game & Fish Comm’n v. United States*, 87 Fed. Cl. 594, 647 (2009) (determining that application of compound interest was not necessary “to satisfy the mandate of the Takings Clause,” where “Treasury STRIPS” accrued interest daily and were added periodically to the principal).

For these reasons, the court has determined that Plaintiffs are entitled to the U.S. Treasury bill compounded rate of interest from September 1, 2005 until the time of payment.

3. The Government’s Asserted Offsets.

a. For Federal Emergency Management Agency Grants.

The Stafford Act authorizes FEMA to provide grants to states or local governments to construct or repair “public facility” or “private nonprofit facilities,” that have been damaged as a result of major disaster. *See* 42 U.S.C. §§ 5121–5208; *see also* 44 C.F.R. § 206.226(f). Gov’t DMem. at 21–23. In this case, FEMA initially made “drive-by or window inspection” estimates to determine whether St. Bernard Parish would be an eligible applicant for public assistance funds. DTR at 48 (Direct Examination of Douglas Landry). Next, St. Bernard Parish made a decision to “rebuild to preexisting condition” or to “take the funds that are eligible to return that piece of property back to its pre-Katrina condition and function and transfer it over to make improvements on another project.” DTR at 70 (Direct Examination of Landry). The applicant for the FEMA Stafford Act grants, however, was not the St. Bernard Parish government, but the State of Louisiana; St. Bernard Parish and the Ninth Ward of the City of New Orleans were considered “subgrantees.” DTR at 48, 50 (Direct Examination of Douglas Landry).

On September 26, 2013, the Government filed a Motion for Partial Summary Judgment Regarding Federal Grant Offsets. 9/26/13 Government Motion For Partial Summary Judgment. On April 25, 2014, the Government filed the Post-Trial Memorandum Of Contentions Of Fact And Law, renewed the September 26, 2013 Motion, and included a list of three Trial Properties owned by St. Bernard Parish that received FEMA grants: 1818 Center Street, Playground with Community Center; Four Acres of Land; and 4119 East Judge Perez Drive (Fire Station). Gov’t DMem. at 21–22.

Nov. 27, 2012) (applying the Moody’s interest rate where the circumstances and evidence showed that use of the DTA’s interest rate would be unjust), *rev’d on other grounds*, 753 F.3d 1279, 1282 (Fed. Cir. 2014). In these cases, plaintiffs proffered evidence supporting the use of the Moody rate. In this case, Mr. Marshall is not competent to ascertain appropriate interest and, in any event, Mr. Marshall simply adopting Plaintiffs’ counsel’s instruction that he endorse the use of the Moody rate, does not satisfy Plaintiffs’ evidentiary burden. DTR at 425 (Cross Examination of Marshall).

The following chart prepared by the Government shows that the amount of FEMA grants received by St. Bernard Parish exceeded Plaintiffs' estimate of the cost of replacement improvements.

Federal Grants to Plaintiff St. Bernard Parish

Address	Amount of Federal Grant	FEMA Grant after Insurance Deductions	Plaintiffs' Estimate of Just Compensation
1818 Center St. (StBP #1)	\$1,102,278 ³⁸	\$ 923,678 ³⁹	\$607,770
Four Acres of Land (StBP #2)	\$3,131,895 ⁴⁰	\$ 2,553,052 ⁴¹	\$1,696,082
4119 E. Judge Perez Dr. (StBP	\$2,184,433 ⁴²	\$ 2,048,515 ⁴³	\$341,702
Total	\$6,418,608	\$5,525,245	\$2,645,554

³⁸ DVX-118 at USFEMA001008 shows \$1,085,442 granted (\$174,553 plus \$910,889 which St. Bernard Parish later transferred to the "Val Reiss" project); DVX-119 at USFEMA000977 shows \$16,836.77 granted (\$15,336.77 plus \$1,500 later deducted for insurance).

³⁹ SPX-1627 at 17, line 19 shows \$177,100 deducted from \$1,085,442 for insurance proceeds; DVX-119 at USFEMA000977, line 9 shows \$1,500 deducted from \$16,836.77 for insurance.

⁴⁰ DVX-112 at PLTF 04-25-2013 000266-67 shows \$756,017 granted (\$172,165 plus \$583,852 which St. Bernard Parish later transferred to the "Val Reiss" project); DVX-111 at USFEMA003113 -14 shows \$55,850.99 granted (\$53,274.01 plus \$2,576.98 later deducted for insurance); DVX-113 at PLTF 04-25-2013 000293 shows \$2,320,028 (\$473,666 granted plus \$1,846,362 which St. Bernard Parish later transferred to the "Val Reiss" project).

⁴¹ SPX-1627 at 17, lines 5-7, 16 (deducting \$576,266.37); DVX-111 at USFEMA003113, line 10 (deducting \$2,576.98).

⁴² SPX-1615 at 27 shows \$2,152,423.22 granted (\$2,024,105.22 granted plus \$128,318 later deducted for insurance); DVX-117 at 6-7 shows \$32,010.41 granted (\$24,410.41 plus \$7,600 later deducted for insurance).

⁴³ SPX-1615 at 27, lines 26, 32, shows a deduction of \$128,318 (\$97,700 plus \$30,618); Trial Tr. 60:16-22 (Landry testifying that the total insurance deduction at this property was \$128,318); DVX-117 at 6-7, line 13 shows \$7,600 deducted.

Gov't DMem. at 116 (Table A).

Plaintiffs counter that any Stafford Act grants received by St. Bernard Parish or Orleans Parish are subject to the collateral source rule. 11/4/13 Plaintiffs' Response To Government's Summary Judgment Motion ("Pls. Resp. to Gov't SJ Mot.") at 20-24. Of course, Plaintiffs are correct that the United States Court of Appeals for the Federal Circuit has recognized that "collateral benefits received by the injured party do not reduce the damages owed the wrongdoer." *LaSalle Talman Bank, F.S.B. v. United States*, 317 F.3d 1363, 1372 (Fed. Cir. 2003) ("[C]ollateral benefits received by the injured party do not reduce the damages owed by the wrongdoer. This rule has been applied in connection with breach of contract, when there is a tortious or negligence component to the breach, or when the equitable balance is such that any windfall should not benefit the wrongdoer."). In *LaSalle*, however, where a breach of contract resulted from an Act of Congress, our appellate court followed the black letter principle: "Where

the [Government's] wrong or breach of contract has not only caused damage, but has also conferred a benefit upon plaintiff . . . which [plaintiff] would not otherwise have reaped, the value of this benefit must be credited to [the Government] in assessing the damages.” *Id.* (citing Charles T. McCormick, HANDBOOK ON THE LAW OF DAMAGES 146 (1935)). That is what happened in this case. In part, because of the Army Corps’ temporary taking, FEMA made grants to the State of Louisiana that, in turn, approved their use by St. Bernard Parish and the City of New Orleans (Ninth Ward) to construct or repair improvements on their properties that they otherwise would not have been entitled to receive.

In the alternative, Plaintiffs argue that St. Bernard Parish is at least entitled to be reimbursed for flood insurance payments that reduced the amount of FEMA grants received. Pls. Resp. to Gov’t SJ Mot. at 26–28; DTR at 85–87 (Landry Redirect) (testifying that any insurance proceeds received by St. Bernard Parish or Orleans Parish were offset and reduced the Stafford Act grants). The court agrees that St. Bernard Parish paid consideration for the benefit of insurance and, as a matter of law, the insurance payments received may not reduce “damages owed by the wrongdoer” under the collateral source rule. *See LaSalle*, 317 F.3d at 1372; *cf. Stewart v. Am. Family Mut. Ins. Co.*, No. 06-09884, 2008 WL 440331, at *5 (E.D. La. Feb. 12, 2008) (“The Louisiana Supreme Court held that the collateral source rule prohibits the tortfeasor from benefitting from ‘write-offs’ by the medical provider, if the plaintiff has paid some consideration for the benefit of the ‘written off’ amounts.”). As to St. Bernard Parish, that amount is \$893,363 for the three Trial Properties. Gov’t DMem. 116 (Table A) (the potential Stafford Act grants \$6,418,608 minus the actual \$5,525,245 grant FEMA made, after deducting insurance payments received by St. Bernard Parish).

For these reasons, the court has determined that the FEMA grants received by St. Bernard Parish preclude Just Compensation for the cost of replacement improvements made, but St. Bernard Parish is entitled to \$893,363, *i.e.*, the amount of insurance payments received for the three governmental owned Trial Properties that reduced the amount of FEMA grants to which St. Bernard Parish was entitled.

b. For United States Department Of Housing And Urban Development Grants Under The “Road Home Program.”

The Department of Housing and Urban Development’s Community Development Block Grant Program provided approximately \$4.2 billion in grants after Hurricanes Katrina and Rita to the State of Louisiana that, in turn, made payments to individual property owners, under the “Road Home Program,” to pay for up to \$150,000 of uninsured losses to repair or reconstruct physical improvements or to pay for relocation expenses. Pls. DFOF ¶¶ 183–96; *see also* Truax Dep. Ex. 7, at TT 001121 (“Teaching The Levees” webpage, available at: http://teachingthelevees.org/?page_id=281).

Recipients of the “Road Home Program,” however, were required to assign insurance proceeds received from any “federal agency, arising out of physical damage to the Residence caused by Hurricane Katrina and/or Hurricane Rita” to the State of Louisiana. DVX100 (May 30, 2007 Road Home Agreement between Gwendolyn and Henry Adams, and the State of Louisiana, Division of Administration, Office of Community Development, by First American Title Insurance Company of Louisiana, Inc.); *see also* SPX3008 at 27–29 (10/15/10 Henry and Gwendolyn Adams

Deposition) (explaining that the Adams Plaintiffs received approximately \$82,000 under the Road Home Program, in addition to approximately \$7,000 of private insurance payments for wind damage, and \$50,000 for flood coverage from a separate insurance policy).²⁰ But, unlike the Stafford Act grant recipients, the Road Home Program participants, were required to agree to sign a contract with the State of Louisiana, including such subrogation requirements as: (1) any Road Home Program grant could be used only for residential purpose for three years; (2) the property owner was required to purchase flood insurance “in perpetuity, or alternatively, for the maximum period by law;” and (3) all *restrictive covenants* in the *Road Home Program contract would run in the future with the land*. Pls. DBr. at 25–26 (citing DVX100 at 118–19); *see also* Pls. DFOF ¶¶ 185–92.

The Government argued that any grants Plaintiffs may have received under the “Road Home Program” must be deducted from any Just Compensation award in this case. Gov’t DMem. at 116 nn.38–43. The Government, however, does not have standing in the United States Court of Federal Claims to seek any offset of Road Home Program grants paid by the State of Louisiana to Plaintiffs under contracts to which the Government was not in privity and that were subject to Louisiana State law. *See Anderson v. United States*, 344 F.3d 1343, 1351 (Fed. Cir. 2003) (holding that “privity is lacking,” where a party is not a signatory to the contractual documents).

C. The Court’s Determination Of Just Compensation Due As To Lost Local Real Estate Tax Revenues.

During these proceedings the court raised the issue of whether lost local real estate tax revenues may be considered private property within the meaning of the Takings Clause of the Fifth Amendment to the United States Constitution. *See, e.g.*, 1/24/13 Status Conference Transcript, ECF No. 205, at 8; DTR at 85–86; 4/27/15 Government Motion, ECF No. 270, at 3–6; 4/27/15 Telephone Conference Transcript, ECF No. 276, at 5, 7–8. On January 8, 2016, the court requested that the parties specifically address this issue. 1/8/16 Oral Argument Transcript, ECF No. 297, at 47–48.

Plaintiffs replied that no “applicable precedent . . . directly addresses that question, [however] relevant Fifth Amendment principles strongly support the proposition that tax revenue does indeed constitute property that may be the subject of a taking.” 1/22/16 Plaintiffs’ Supplemental Class Certification Brief (“Pls. Supp. CC Br.”) at 32. The Government did not respond, but previously argued that “any loss of tax revenues would not be relevant to any issue involved in this case.” 4/29/15 Government Response To Court Order, ECF No. 272, at 1–2. The court disagrees.

²⁰ On July 31, 2007, the Road Home Program application process was terminated; only 20 percent of all applicants received grants thereunder. Truax Dep. Ex. 7, at TT001124 (“Teaching The Levees” webpage, available at: http://teachingthelevees.org/?page_id=281). On August 30, 2008, the *New York Times* reported that \$3.3 million was spent to date on the Road Home Program, but it had no effect on most of the houses in New Orleans during and after Hurricane Katrina. Truax Dep. Ex. 7, at TT001127 (“Teaching The Levees” webpage, available at: http://teachingthelevees.org/?page_id=281).

In 1984, the United States Supreme Court held in *United States v. 50 Acres of Land*, 469 U.S. 24 (1984) that “‘private property’ in [the context of] the Takings Clause . . . encompass[es] the property of state and local governments when it is condemned by the United States.” *Id.* at 31; *see also Horne v. Dep’t of Agric.*, 135 S. Ct. 2419, 2426 (2015) (“[The Takings Clause] protects ‘private property’ without any distinction between different types.”). In light of this precedent, the court has determined that local government property tax losses should be considered private property subject to the Takings Clause of the Fifth Amendment and an appropriate element of Just Compensation in this case.

To ascertain the amount of local real estate tax revenue losses experienced by the City of New Orleans (Lower Ninth Ward) and St. Bernard Parish, as a result of the temporary taking in this case, on April 5, 2016, the court issued a Memorandum Opinion And Order requesting Declarations from St. Bernard Parish and the City of New Orleans (Lower Ninth Ward) to verify local property tax record information reflected on their governmental websites or otherwise available to the public. 4/5/16 Memorandum Opinion And Order, ECF No. 308 (“4/5/16 Order”).

The following chart reflects the information received from the City of New Orleans as to the Lower Ninth Ward.

Real Estate Taxes for the Lower Ninth Ward		
Year	Amount of Real Estate Taxes Billed	Net (of Refunds) Taxes Paid
2004	\$2,296,699.24	\$2,007,241.79
2005	\$2,426,640.89	\$2,020,953.93
2006	\$857,046.78 ²¹	\$686,981.67
2007	\$1,008,997.40	\$785,840.50

The 2005 real estate property taxes for the Lower Ninth Ward, reflected in this chart, “were assessed in January 2005, and a majority was collected in the first half of the year[.]” *i.e.*, prior to Hurricane Katrina. CITY OF NEW ORLEANS, LA., BASIC FINANCIAL STATEMENTS 7 (2005), <http://www.nola.gov/accounting/#report>.

Therefore, \$2,020,953.93, the net real estate taxes paid to the City of New Orleans in 2005 by property owners in the Lower Ninth Ward is an appropriate base from which to measure losses in 2006 and 2007.²² For 2006, the local real estate tax revenues lost would be \$1,333,972.26; for

²¹ In a March 29, 2016 email to the court, Walter J. O’Brien, Finance Operations Manager, City of New Orleans, indicated that the significant decrease in real estate taxes assessed between 2005 and 2006 “was the effect of reductions in assessment values, and taxes, recognized after the destruction from the flooding of August 29, 2005.” 4/5/16 Order, at 4 n.15 (citing Court Order Exhibit L).

²² Since the impact of the housing crisis in 2008 would be reflected in real estate tax collections for that year, the court has determined that the end of fiscal year 2007 is an appropriate

2007, the real estate tax revenues lost would be \$1,235,113.43, both of which are a “reasonable approximation” of an amount of Just Compensation due for the temporary taking in this case. *See Arkansas Game & Fish*, 736 F.3d. at 1379. These losses also are consistent with reports that show 2,595 of 2,975 or 87% of owner-occupied housing and 4,679 of 5,701 or 72% of renters-occupied housing in the Lower Ninth Ward was classified as “Severe/Destroyed.” *See St. Bernard Par.*, 121 Fed. Cl. at 712.

In contrast, the following chart reflects the local taxes due St. Bernard Parish for land and improvement taxes and net taxes paid.

Land and Improvement Taxes for St. Bernard Parish		
Year	Taxes Due from Tax Payer	Net Taxes Paid
2004	\$31,458,047.58	\$31,083,543.00
2005	\$23,867,311.61	\$23,200,000.00
2006	\$24,594,324.78	\$24,054,378.55
2007	\$25,179,458.54	\$25,055,113.47

Since the local tax revenues received by St. Bernard Parish were not diminished by the temporary taking in this case, no Just Compensation is due for the loss of land and improvement taxes.

III. THIS CASE IS NOW APPROPRIATE FOR CLASS CERTIFICATION.

A. The Requirements Of RCFC 23(a) Have Been Met.

RCFC 23(a) provides that:

One or more members of a class may sue as representative parties on behalf of all members only if:

- (1) the class is so numerous that joinder of all members is impracticable;
- (2) there are questions of law or fact common to the class;
- (3) the claims or defenses of the representative parties are typical of the claims or defenses of the class; and
- (4) the representative parties will fairly and adequately protect the interests of the class.

RCFC 23(a).

juncture to measure local real estate tax revenues lost, attributable to the temporary taking in this case.

For purposes of liability, Plaintiffs request that the court certify the following class:

A class consisting of owners of real property, as of August 28, 2005, located in St. Bernard Parish, Louisiana, and/or the Lower Ninth Ward of the City of New Orleans, Louisiana, who were subject to the temporary taking of such property, as a result of increased storm surge, during Hurricane Katrina and/or “inevitably recurring” flooding during subsequent hurricanes and severe storms, as a result of the United States Army Corps of Engineers’ construction, expansions, operation, and failure to maintain the Mississippi River-Gulf Outlet, until it permanently was closed on July 1, 2009. “Owners of real property” does not include the United States government or agencies or instrumentalities thereof.

Pls. Supp. CC Br. at 24.

For purposes of Just Compensation due, Plaintiffs request that the court certify two subclasses: owners of residential property; and owners of commercial, industrial, governmental, and all other properties.

Subclass A. A class consisting of owners of real property, as of August 28, 2005, that as of that date was zoned and/or lawfully used as residential property in St. Bernard Parish, Louisiana, and/or the Lower Ninth Ward of the City of New Orleans, Louisiana, who were subject to the temporary taking of such property, as a result of increased storm surge, during Hurricane Katrina and/or “inevitably recurring” flooding during subsequent hurricanes and severe storms, as a result of the United States Army Corps of Engineers’ construction, expansions, operation, and failure to maintain the Mississippi River-Gulf Outlet, until it permanently was closed on July 1, 2009. “Owners of real property” does not include the United States government or agencies or instrumentalities thereof. “Residential property” does not include multifamily housing (other than duplexes) but does include duplexes and property rented for use for residential purposes.

Subclass B. A class consisting of owners, as of August 28, 2005, of commercial, industrial, and governmental real property, and of all other real property not included in Subclass A, located in St. Bernard Parish, Louisiana, and/or the Lower Ninth Ward of the City of New Orleans, Louisiana, who were subject to the temporary taking of such property, as a result of increased storm surge, during Hurricane Katrina and/or “inevitably recurring” flooding during subsequent hurricanes and severe storms, as a result of the United States Army Corps of Engineers’ construction, expansions, operation, and failure to maintain the Mississippi River-Gulf Outlet, until it permanently was closed on July 1, 2009. “Owners of commercial, industrial, and governmental real property” does not include the United States government or agencies or instrumentalities thereof.

Pls. Supp. CC Br. at 25.

1. The Class Is So Numerous That Joinder Of All Members Is Impracticable.

In this case, Plaintiffs assert that the numerosity requirement of RCFC 23(a)(1) is met, for purposes of both liability and Just Compensation, because there are “at least” 30,000 property owners that experienced increased storm surge flooding caused by the Army Corps’ construction, expansions, operation, and failure to maintain the MR-GO during Hurricane Katrina and subsequent hurricanes and severe storms. 6/22/10 Plaintiffs’ Memorandum In Support Of Motion For Class Certification (“Pls. CC Mem.”) at 4–5 n.4 (citing 4/7/10 Declaration of Errol G. Williams, Assessor for the Third Municipal District of the Orleans Parish Board of Assessors (stating that as of the last assessment, prior to Hurricane Katrina, there were 7,667 parcels of land in the Lower Ninth Ward); 3/17/10 Declaration of Marlene Vinsanau, Assessor for St. Bernard Parish (stating that as of the last assessment, prior to Hurricane Katrina, there were 27,146 parcels of “immovable property”²³ in St. Bernard Parish)).

The Government does not contest that the numerosity requirement is satisfied in this case. 2/15/13 Government Opposition To Plaintiffs’ Motion For Class Certification (“Gov’t CC Opp.”).

For these reasons, the court has determined that the requirements of RCFC 23(a)(1) are met.

2. There Are Questions Of Law Or Fact Common To The Class.

Plaintiffs argue that the commonality requirement of RCFC 23(a)(2) as to liability and Just Compensation is met, because there are questions of law and fact common to both classes. Pls. CC Mem. at 6–13.

The Government’s objection to class certification centers on the commonality requirement both as to liability (Gov’t CC Opp. at 6–20) and Just Compensation due (Gov’t CC Opp. 20–28). As to liability, the Government asserts that the determinative issue is whether the court “can apply a common analysis to resolve the putative class members’ claims.” Gov’t CC Opp. at 6. The Government insists that the court must “weigh carefully the relevant factors and circumstances in each case[.]” Gov’t CC Opp. at 13 (quoting *Arkansas Game & Fish*, 133 S. Ct. at 521). Among those factors, include: “duration;” “intent or foreseeability;” “character of the land;” and “severity of interference.” Gov’t CC Opp. at 14. But, the court’s May 1, 2015 Liability Decision considered each of these factors. *See St. Bernard Par.*, 121 Fed. Cl. at 718–49. Moreover, the Government misreads *Arkansas Game & Fish* when it argues that case requires a balancing of these factors “with respect to *each* putative class member’s property” for the purpose of Just Compensation. Gov’t CC Opp. at 14 (emphasis added). *Arkansas Game & Fish* imposes no such requirement nor does it discuss class certification at all. The Government is also misguided when it insists that the commonality element of RCFC 23(a) cannot be established in this case, because “[s]ome properties will have flooded infrequently and others will have proven more vulnerable, and the

²³ See La. Stat. Ann. § 47:1702 (“‘Real estate’ or ‘immovable property’ means and includes not only land, city, town and village lots, but all things thereunto pertaining, and all structures and other appurtenances thereto, as pass to the vendee by the conveyance of the land or lot.”).

effects of the MRGO on each may range from significant to negligible.” Gov’t CC Opp. at 18. Although some of Plaintiffs’ properties experienced different levels of increased storm surge flooding during Hurricane Katrina and other subsequent hurricanes and severe storms,²⁴ Plaintiffs established at trial that *all* their properties experienced increased storm surge flooding as a result of the Army Corps’ construction, expansions, operation, and failure to maintain the MR-GO that was both severe and “inevitably recurring” until the MR-GO permanently was closed. *See St. Bernard Par.*, 121 Fed. Cl. at 713–14, 738–39. Perhaps the most persuasive evidence on commonality as to liability and Just Compensation is a 2008 FEMA flood insurance study recognizing that “the still-open MRGO [has] left *the parish* vulnerable to future storms,” leading the Army Corps to close the MR-GO permanently in July 2009. *Id.* at 714–15 (emphasis added) (citing SPX.0423 at 3 (citing other risk analyses performed by FEMA and the Army Corps, as described in Plaintiffs’ 4/13/12 Proposed Findings Of Fact at ¶¶ 396–406)).

As the United States Supreme Court held in *Wal-Mart Stores, Inc. v. Dukes*, 564 U.S. 338, 345 (2011), the commonality element of Rule 23(a)(2) of the Federal Rules of Civil Procedure (“FRCP”) requires that:

[The] common contention . . . must be of such a nature that it is capable of classwide resolution—which means that determination of its truth or falsity will resolve an issue that is central to the validity of each one of the claims in one stroke.

Id. In other words, the common question must be outcome determinative.

In this case, the common question determined by the court was whether the Army Corps’ construction, expansions, operation, and failure to maintain the MR-GO caused increased storm surge flooding in St. Bernard Parish and the Lower Ninth Ward during Hurricane Katrina as well as “inevitably recurring” flooding during subsequent hurricanes and severe storms, effecting a

²⁴ The flooding levels discussed at trial varied. *See, e.g.*, DTR at 373, 375 (Cross Examination of Marshall) (describing a 1½ story home completely “washed away”); DTR at 378 (Cross Examination of Marshall) (stating that homes “moved all around from the water”); DTR at 520 (Cross Examination of Westerink) (“For some properties, the difference is about seven feet.”); DTR at 546 (Cross Examination of Westerink) (describing how approximately 9 feet of water filled up the Lower Ninth Ward); DTR at 370 (Cross Examination of Marshall) (“Indeed, water reached a height of [28] feet at nearby buildings.”); DTR at 640 (Cross Examination of Fitzgerald) (describing 12.4 feet of water at the Deslonde property under Scenario A2; and 10.9 feet of water at 1818 Center Street, when Dr. Westerink describes 8½ feet for the same property); DTR at 641 (Cross Examination of Fitzgerald) (describing 12 feet of water at the Deslonde property under Scenario A1); DTR at 711 (Cross Examination of Danner) (describing 8 feet of water at the Fenelon property). The depth of the flooding discussed by the Government’s experts in this case, however, did not account for the movement of the water nor how long floodwater remained on a property. *See, e.g.*, Westerink Direct at 17 (Table 3) (estimating peak water levels during Hurricane Katrina between 10.5 feet–17.3 feet); DTR at 518 (Cross Examination of Westerink); DTR at 675, 680 (Cross Examination of Danner).

temporary taking of Plaintiffs' properties until the MR-GO was permanently closed in July 2009. *See St. Bernard Par.* 121 Fed. Cl. at 698–715, 733–39.

Moreover, it is important to recognize that the United States Supreme Court considered a *pre-trial record* in *Wal-Mart* where the putative class attempted to meet the commonality requirement with statistical and anecdotal evidence that Wal-Mart had a “corporate culture [that] permit[ted] bias against women to infect . . . the discretionary decisionmaking of each one of Wal-Mart’s thousands of managers—thereby making every woman at the company the victim of one common discriminatory practice.” *Wal-Mart*, 564 U.S. at 345. The Court properly concluded that the nature of that evidence was not sufficient nor reliable to establish that Wal-Mart “operated under a *general policy* of discrimination,” since no evidence was introduced demonstrating that all the company managers conducted themselves in a common manner so that each class member suffered a common injury. *Id.* at 354–55 (emphasis added).

In this case, however, the trial record consists almost exclusively of Army Corps and other governmental documents evidencing that that the Army Corps’ construction, expansions, operation and failure to maintain the MR-GO caused increased storm surge flooding on Plaintiffs’ properties during Hurricane Katrina and subsequent hurricanes and severe storms, effecting a temporary taking of Plaintiffs’ properties until the closing of the MR-GO in July 2009. *See St. Bernard Par.*, 121 Fed. Cl. at 739, 720–23; *see also In re Katrina Canal Breaches Litig.*, 696 F.3d 436, 443 (5th Cir. 2012) (determining that the Government’s “delay in armoring MRGO allowed wave wash . . . to erode the channel considerably . . . [and] MRGO’s expansion thus allowed Hurricane Katrina to generate a peak storm surge capable of breaching the Reach 2 levee and flooding the St. Bernard polder.”). In addition, as a Special Report of the Committee on Homeland Security and Governmental Affairs, “Hurricane Katrina, A Nation Still Unprepared,” stated in May 2006:

The building of MRGO and the combined GIWW/MRGO . . . provided a connection between Lake Borgne and Lake Pontchartrain that allowed the much greater surge from Lake Borgne to flow into both New Orleans and Lake Pontchartrain. These channels further increased the speed and flow of the Katrina surge into New Orleans East and the Ninth Ward/St. Bernard Parishes, increasing the destructive force against adjacent levees and contributing to their failure. As a result, MRGO and the combined GIWW/MRGO resulted in increased flooding and greater damage from Hurricane Katrina.

SPX692 at 125. In sum, the sufficiency and reliability of the evidence in the record of this case is distinctly different than that presented in *Wal-Mart*.

Finally, as the Court observed in *Wal-Mart*, “What matters to class certification . . . [is] the capacity of a classwide proceeding to generate common *answers* apt to drive the resolution of the litigation.” *Wal-Mart*, 564 U.S. at 350 (quotation omitted) (emphasis in original). The “common answers” as to whether the Army Corps’ construction, expansions, operation, and failure to maintain the MR-GO caused increased storm surge flooding during Hurricane Katrina and subsequent hurricanes and severe storms, effecting a temporary taking of Plaintiffs’ properties were provided in *St. Bernard Par.*, 121 Fed. Cl. at 718–46. The “common answers” as to the amount of Just Compensation due has been addressed in this Memorandum Opinion.

For these reasons, the court has determined that the requirements of RCFC 23(a)(2) are met in this case.

3. The Claims Or Defenses Of The Representative Parties Are “Typical” Of The Claims Or Defenses Of The Class.

The amount of Just Compensation due does not affect typicality; the key is whether all class members are challenging the same conduct and rely on the same legal theories. *See In re Prudential Ins. Co. Am. Sales Practice Litig. Agent Actions*, 148 F.3d 283, 311 (3d Cir. 1998) (“Commentators have noted that cases challenging the same unlawful conduct which affects both the named plaintiffs and the putative class usually satisfy the typicality requirement irrespective of the varying fact patterns underlying the individual claims.” (quoting *Baby Neal ex rel. Kanter v. Casey*, 43 F.3d 48, 58 (3d Cir. 1994))). The Government does not contest the “typicality” requirement of RCFC 23(a)(3).

For these reasons, the court has determined that the requirements of RCFC 23(a)(3) are met in this case.

4. The Representative Parties Will Fairly And Adequately Protect The Interests Of The Class.

Among the factors the court must consider in determining whether the representative Plaintiffs will fairly and adequately protect the interests of the class as a whole is to ascertain whether class members do not have opposing interests. Since this case was filed in 2005, no potential class member has come forward to challenge the interests of the representative Plaintiffs and this matter has received widespread coverage in the New Orleans press and media. Moreover, the Government does not oppose class certification based on RCFC 23(a)(4).

For these reasons, the court has determined that the requirements of RCFC 23(a)(4) have been met.

B. The Requirements Of RCFC 23(b) Have Been Met.

If the “prerequisites” of RCFC 23(a) are met, the putative members of the class also must establish under RCFC 23(b) that:

- (2) the United States has acted or refused to act on grounds generally applicable to the class; and
- (3) the court finds that the questions of law or fact common to class members *predominate over any questions affecting only individual members*, and that a class action is superior to other available methods for fairly and efficiently adjudicating the controversy. The matters pertinent to these findings include:
 - (A) the class members’ interests in individually controlling the prosecution of separate actions;
 - (B) the extent and nature of any litigation concerning the controversy already begun by class members;

- (C) [not used]; and
- (D) the likely difficulties in managing a class action.

RCFC 23(b)(2), (3) (emphasis added).

In this case, the Army Corps acted on grounds generally applicable to the class, satisfying RCFC 23(b)(2). *See St. Bernard Par.*, 121 Fed. Cl. at 720–23. As to the requirements of RCFC 23(b)(3), in *Comcast Corp. v. Behrend*, 133 S. Ct. 1426 (2013), the United States Supreme Court held that a class action improperly was certified under FRCP 23(b)(3), where the respondent’s economic model fell “far short of establishing that damages are capable of measurement on a classwide basis,” because the predominance requirement cannot be shown where “[q]uestions of individual damage calculations will inevitably overwhelm questions common to the class.” *Id.* at 1433. As the Court observed, “the first step in a damages study is the translation of the *legal theory of the harmful event* into an analysis of the economic impact of *that event*.” *Id.* at 1435 (quoting FEDERAL JUDICIAL CENTER REFERENCE MANUAL ON SCIENTIFIC EVIDENCE 432 (3d ed. 2011)).

In this case, the “legal theory” adjudicated by the court was whether the Army Corps’ construction, expansions, operation, and failure to maintain the MR-GO caused increased storm surge flooding on Plaintiffs’ properties during Hurricane Katrina and subsequent hurricanes and severe storms, effecting a temporary taking of Plaintiffs’ properties under the Fifth Amendment. *See St. Bernard Par.*, 121 Fed. Cl. at 718–46. This legal theory is interrelated to and dependent on facts common to the class members—all of which are property owners in St. Bernard Parish or the Ninth Ward of the City of New Orleans and predominate over any questions affecting any individual members, as discussed above. And, the “economic impact of that event” has been determined by this Memorandum Opinion And Partial Final Judgment adjudicating Just Compensation due for the Trial Properties.

Nevertheless, the Government contends, even if liability from a temporary taking is established, class treatment is not appropriate, because “[t]he cause and extent of damage to each property are a highly individualized determination that cannot be made on an aggregate basis. Damage to individual properties attributed to a particular cause varies widely and significantly from property to property. No two properties are alike.” Gov’t CC Opp. at 23 (“[The] ‘causes and extent of damages to individual properties from Hurricane Katrina or its aftermath require individual forensic inspection, analysis, and evaluation of each property, including consideration of’ eighteen different elements, such as ‘damage from wind, rain flying debris, fire, vandalism, theft, . . . [c]ondition of the structures on the site and suitability for repair . . . [and] [c]ondition of the properties in the surrounding area.’” (quoting 2/13/13 Declaration of James R. Danner at 2)) (second, third and fourth alteration in original). For example, during Hurricane Katrina, wind speed varied with time and location, as a FEMA model shows that estimated 40 to 80 percent of the structures in New Orleans sustained some level of wind damage, irrespective of any flooding. Gov’t CC Opp. at 23–24. In addition, water entered into the New Orleans area from numerous sources, including twenty-four sources in St. Bernard Parish and the Lower Ninth Ward. Gov’t CC Opp. at 24 (citing 2/12/13 Declaration of R. Lee Wooten, Professional Engineer, at 5, 10–12).

Of course, wind speed²⁵ and rain²⁶ contributed to the property damage that Plaintiffs experienced but, as the Government admitted in *Robinson* and Plaintiffs independently established in this case, the predominate injury to Plaintiffs' properties was caused by increased storm surge flooding caused by the Army Corps' construction, expansions, operation, and failure to maintain the MR-GO during Hurricane Katrina, as well as "inevitably recurring" flooding during subsequent hurricanes and severe storms. See U.S. *Robinson* FOF ¶ 334 ("Levee degradation and breaching along the MRGO Reach 2 created a very large source of water which . . . was by far the greatest source of water that entered the [St. Bernard] polder, greatly exceeding all other sources."); see also *St. Bernard Par.*, 121 Fed. Cl. at 712 (citing 12/6/11 Kemp Direct at 38) (estimating that flooding damaged 98% of all structures in St. Bernard Parish and the Lower Ninth Ward); see also *id.* at 739–41; DTR at 651 (the Government's expert, Mr. Fitzgerald, testified that 88 percent of the volume of water came through the MR-GO levee breaches). If the standard for predominance required "forensic inspection, analysis, and evaluation of each property," no class could ever be certified for damages. As Circuit Judge Posner recognized, *Comcast* does not require "that every member of the class have identical damages." *Butler v. Sears, Roebuck & Co.*, 727 F.3d 796, 801 (7th Cir. 2013), *cert. denied*, 134 S. Ct. 1277 (2014). Instead, class certification is appropriate, "[i]f the issues of liability are genuinely common issues" and if "the damages of individual class members can be readily determined in individual hearings, in settlement negotiations, or by creation of subclasses." *Id.*

Moreover, the "no two properties are alike" argument that the Government advances was rejected by the Advisory Committee that drafted FRCP 23, recognizing that individual damage calculations should not "scuttle" class certification under FRCP 23(b)(3). See NEWBERG ON CLASS ACTIONS § 4:54 (5th ed. 2015) (citing Rules Advisory Committee Notes, 39 F.R.D. 69, 103 (1966)). This principle also was affirmed a few weeks ago when the United States Supreme Court, in *Tyson Foods, Inc. v. Bouaphakeo*, 136 S. Ct. 1036, 1045–49 (2016), held that "representative evidence" can be used to satisfy FRCP 23(a)(3)'s predominance inquiry, rejecting the requirement of "person-specific" evidence of liability. As such, *Tyson Foods* is dispositive of the Government's argument that the predominance inquiry cannot be established in this case since some Plaintiffs' properties may have experienced more MR-GO increased storm surge flooding than others.

²⁵ To the extent that wind damage also was a factor, it did not significantly change how appraisers on the scene determined whether improvements needed to be replaced. For example, the Adams' insurance company paid \$7,000 for wind damage, but the Adams' flood insurance company paid them \$50,000. SPX3008 at 7; SPX2224 at 1 ("Winds from Hurricane Katrina caused limited damage to [2414 Deslonde.]"). In addition, at Steve's RV the flood damage estimate was \$241,000; the wind damage estimate was \$23,000. DTR at 712–13; DVX118 at 10 (FEMA Project Worksheet Report for 1818 Center Drive) ("THE FLOOD REPLACEMENT COSTS ARE 98.3% OF THE REPLACEMENT COST."); DVX116 at 5 (FEMA Project Worksheet Report) ("ALL OF THE DAMAGE TO THE BUILDING AND GROUNDS WERE CAUSED BY FLOOD WATERS INUNDATION.").

²⁶ DTR at 605 (Mr. Fitzgerald testified that the "average contribution of rainfall in the St. Bernard Basin" was "9.3 inches or 0.7 feet.").

In sum, in light of the questions of law and fact common to all owners of affected property in St. Bernard Parish and the Lower Ninth Ward of the City of New Orleans, a class action is a superior procedural vehicle to fairly and efficiently adjudicate the contested issues of fact and law. The mandatory joinder of thousands of individual property owners, particularly at this juncture when both the liability and Just Compensation have been adjudicated as to the Trial Properties, is not necessary. Based on the court's findings today, the parties, a skilled mediator, or the court can use public records to ascertain the square footage of the affected properties and determine Just Compensation with a "reasonable approximation." *Arkansas Game & Fish*, 736 F.3d at 1329; *see also Georgia-Pacific Corp.*, 640 F.2d at 336 (citations omitted) ("[The] concept of just compensation . . . cannot be reduced to a formula, nor can it be confined to inexorable rules.").

For these reasons, the court has determined that RCFC 23(b)(2), (3) have been satisfied.

C. The Appointment Of Class Counsel.

In appointing class counsel, the court must consider:

- (i) the work counsel has done in identifying or investigating potential claims in the action;
- (ii) counsel's experience in handling class actions, other complex litigation, and the types of claims asserted in the action;
- (iii) counsel's knowledge of the applicable law; and
- (iv) the resources that counsel will commit to representing the class[.]

RCFC 23(g)(1)(A).

Charles J. Cooper, a named partner in the firm of Cooper & Kirk, PLLC, of Washington, D.C. has been actively engaged in identifying, investigating, and litigating the claims in this case since July 2, 2009. Mr. Cooper has substantial trial experience before the United States Court of Federal Claims, specific expertise with class actions and complex cases, and has appeared before numerous federal courts of appeals and the United States Supreme Court. In addition, Mr. Cooper has the depth of professional experience and the firm has financial resources to represent the class. 1/22/16 Declaration of Charles J. Cooper, ECF No. 300-1. As such, Mr. Cooper meets the requirements of RCFC 23(g)(1)(A) and is appointed Class Counsel in this case.²⁷

IV. CONCLUSION.

For these reasons, the court has determined that there is no just reason for delay and enters a partial final judgment, pursuant to RCFC 54(b), determining that the non-governmental Plaintiffs that owned one of the Trial Properties, as of August 29, 2005, are entitled to: (1) the cost of replacement improvements, as of August 29, 2005, as set forth in Court Exhibit A; and (2) fair market rent lost, from September 1, 2005 until July 1, 2009, as set forth in Court Exhibit C.

²⁷ The court has been asked to appoint other New Orleans attorneys as Class Counsel. The court may do so in the future, after further examination and inquiry.

The St. Bernard Parish Government is entitled to recoup insurance proceeds of \$893,363 on three of the Trial Properties that reduced the amount of Stafford Act grants received.²⁸

The City of New Orleans (Ninth Ward) is entitled to lost real estate taxes for 2006 and 2007.²⁹

Plaintiff-owners of the non-governmental Trial Properties are entitled to compound interest on the amount of Just Compensation due from August 29, 2005, until the date such compensation is made.

St. Bernard Parish is entitled to compound interest on the amount of Just Compensation due on the insurance proceeds, referenced herein.³⁰

The court emphasizes that none of the Just Compensation that the court has ruled is due the property owners for their losses previously was paid by the *federal government*.

The court also certifies for purposes of liability: A class consisting of owners of real property or “immovable property,” under Louisiana State law as of August 28, 2005, located in St. Bernard Parish, Louisiana, and/or the Lower Ninth Ward of the City of New Orleans, Louisiana, subject to the temporary taking of such property, as a result of increased storm surge, during Hurricane Katrina and/or “inevitably recurring” flooding during subsequent hurricanes and severe storms, as a result of the United States Army Corps of Engineers’ construction, expansions, operation, and failure to maintain the Mississippi River-Gulf Outlet, until it permanently was closed on July 1, 2009. “Owners of real property” does not include the United States government or agencies or instrumentalities thereof. For purposes of Just Compensation due, the court also certifies two subclasses:

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Subclass A. A class consisting of owners of real property or “immovable property,” under Louisiana State law as of August 28, 2005, that was zoned and/or lawfully used as residential property, located in St. Bernard Parish, Louisiana, and/or the Lower Ninth Ward of the City of

²⁸ At such time as a final judgment is entered, St. Bernard Parish also will be entitled to recoup all other insurance proceeds that reduced the amount of Stafford Act grants received. Likewise, the City of New Orleans will be entitled to recoup all insurance proceeds that reduced the amount of Stafford Act grants received for the Ninth Ward.

²⁹ The court has no reason to believe the public real estate tax records of the City of New Orleans for the Ninth Ward, showing lost real estate taxes of \$2,569,085.69 for 2006 and 2007 are not accurate. Nevertheless, the parties should conduct whatever additional due diligence they deem appropriate and submit any briefs on or before December 30, 2016, while appellate proceedings in this case proceed.

³⁰ Likewise, at such time as a final judgment is entered, the City of New Orleans (Ninth Ward) will be entitled to compound interest on the Just Compensation due on the insurance proceeds as well as lost real estate taxes.

New Orleans, Louisiana, subject to the temporary taking of such property, as a result of increased storm surge, during Hurricane Katrina and/or inevitably recurring flooding during subsequent hurricanes and severe storms, as a result of the United States Army Corps of Engineers' construction, expansions, operation, and failure to maintain the Mississippi River-Gulf Outlet, until it permanently was closed on July 1, 2009. "Owners of real property" does not include the United States government or agencies or instrumentalities thereof. "Residential property" does not include multifamily housing (other than duplexes) but does include duplexes and property rented for use for residential purposes.

Subclass B. A class consisting of owners of real property or "immovable property" under Louisiana State law, as of August 28, 2005, that was zoned and/or lawfully used as commercial, industrial, or governmental property, and including all other real property not included in Subclass A, located in St. Bernard Parish, Louisiana, and/or the Lower Ninth Ward of the City of New Orleans, Louisiana, subject to the temporary taking of such property, as a result of increased storm surge, during Hurricane Katrina and/or inevitably recurring flooding during subsequent hurricanes and severe storms, as a result of the United States Army Corps of Engineers' construction, expansions, operation, and failure to maintain the Mississippi River-Gulf Outlet, until it permanently was closed on July 1, 2009. "Owners" does not include the United States government or agencies or instrumentalities thereof.

Mr. Charles J. Cooper, Esquire, of Cooper & Kirk, PLLC, Washington, D.C., is appointed class counsel, pursuant to RCFC 23(g)(1)(A).

IT IS SO ORDERED.

s/ Susan G. Braden
SUSAN G. BRADEN
Judge

Finally, it is important for the public, property owners that are representative Plaintiffs in this case, and members of the certified class action ordered herein to understand why, since this case was filed in 2005, that it has taken over a decade to reach this juncture.

First, the United States Supreme Court requires federal courts *not* to adjudicate constitutional questions, *if* a case can be resolved by a statute or other grounds. Since over 400 other lawsuits first were filed in the United States District Court in the Eastern District of Louisiana alleging that the Government was liable under the Federal Tort Claims Act and Louisiana state law, those cases had to be finally resolved. While the federal court proceedings in Louisiana were underway, however, this court adjudicated motions to dismiss filed by the Government in 2007 and 2008 and convened a trial on liability in New Orleans in December 2011, so as not to delay these proceedings, if the trial decision in *Robinson* was not affirmed—but, that occurred on March 12, 2012.

Second, on December 4, 2012, an unanimous United States Supreme Court, issued a landmark opinion in *Arkansas Game & Fish Comm'n v. United States*, 133 S. Ct. 511, 522 (2012),

holding “that governmental-induced flooding temporary in duration gains no automatic exemption from Takings Clause [of the Fifth Amendment to the United States Constitution].”). The significance of that opinion on this case cannot be overstated and initiated a new round of briefs. In November 2013, the court held an evidentiary hearing on Just Compensation in Washington, D.C. Again, months of briefs, substantive filings from the parties, and hearings followed.

Third, on May 1, 2015, the court issued a Memorandum Opinion And Order determining that the Army Corps’ construction, expansions, operation, and failure to maintain the MR-GO caused increased storm surge flooding on private property during Hurricane Katrina and subsequent severe storms, effecting a temporary taking under the Fifth Amendment to the United States Constitution. The court’s subsequent request that the Government mediate the amount of Just Compensation due was rejected. In the months that followed, once again the court received numerous briefs and substantive filings from the parties and held post trial arguments on December 21, 2015, January 8, 2016, and April 19, 2016 on Just Compensation.

Today, the court has entered a Partial Final Judgment on Just Compensation due only owners of certain “test” Trial Properties, so the United States Court of Appeals for the Federal Circuit may review the court’s decisions in this case. That review likely will take at least another year. While the appellate process is underway, the court will be issuing a series of Orders to the St. Bernard Parish Government and the City of New Orleans (Lower Ninth Ward) in the near future to obtain public information necessary to finalize the amount of Just Compensation due, so that the court will be in a position to proceed promptly to issue a final money judgment as to all class members, if the appellate court affirms this court’s decisions.

In the United States Court of Federal Claims

No. 05-1119 L

**ST. BERNARD PARISH GOVERNMENT
AND OTHER OWNERS OF REAL
PROPERTY IN ST. BERNARD
PARISH OR THE LOWER NINTH
WARD OF THE CITY OF NEW
ORLEANS**

**RULE 54(b)
JUDGMENT**

v.

THE UNITED STATES

Pursuant to the court's Memorandum Opinion and Partial Final Order for Just Compensation, filed May 4, 2016,

IT IS ORDERED AND ADJUDGED this date, pursuant to Rule 58:

- that the non-governmental Plaintiffs that owned one of the Trial Properties, as of August 29, 2005, are entitled to: (1) the cost of replacement improvements, as of August 29, 2005, as set forth in the attached Court Exhibit A; and (2) fair market rent lost, from September 1, 2005 until July 1, 2009, as set forth in the attached Court Exhibit C;
- The St. Bernard Parish Government is entitled to recoup insurance proceeds of \$893,363.00 on three of the Trial Properties that reduced the amount of Stafford Act grants received;
- The City of New Orleans (Ninth Ward) is entitled to lost real estate taxes for 2006 and 2007;
- Plaintiff-owners of the non-governmental Trial Properties are entitled to compound interest on the amount of Just Compensation due from August 29, 2005, until the date such compensation is made; and
- St. Bernard Parish is entitled to compound interest on the amount of Just Compensation due on the insurance proceeds, referenced in the above-referenced Memorandum Opinion and Partial Final Order.

Lisa L. Reyes
Acting Clerk of Court

May 5, 2016

By: s/ Debra L. Samler

Deputy Clerk

NOTE: As to appeal, 60 days from this date, see RCFC 58.1, re number of copies and listing of all plaintiffs. Filing fee is \$505.00.

COURT EXHIBIT A

Property	Address	Use	Cost of Replacement Improvements on August 29, 2005
1. Tommaseo	3614-16 Fenelon St.	Residential Rental	\$121,000.00
2. Bordelon	3024 Lakewood Dr.	Residential	\$162,725.00
3. Steve's RV	3209 E. Judge Perez Dr.	Commercial	\$441,000.00
4. Robin	2316 Florissant Hwy.	Residential Rental	\$103,690.00
5. PSSI	6325 Paris Rd.	Industrial	\$443,500.00
6. Adams	2414 Deslonde St.	Residential	\$89,967.50

COURT EXHIBIT C

Property	Address	Use	Monthly Fair Market Rent	Fair Market Rent Lost for 42 Months
Tommaseo	3614-16 Fenelon St.	Residential Rental	\$1,103.00	\$46,326.00
Bordelon	3024 Lakewood Dr.	Residential	\$1,329.00	\$55,818.00
Steve's RV	3209 E. Judge Perez Dr.	Commercial	\$7,569.00	\$317,898.00
Robin	2316 Florissant Hwy.	Residential Rental	\$873.00	\$36,666.00
PSSI	6325 Paris Rd.	Industrial	\$5,603.00	\$235,326.00
Adams	2414 Deslonde St.	Residential	\$725.00	\$30,450.00

CERTIFICATE OF COMPLIANCE

1. This brief complies with the type-volume limitation in this Court's December 2, 2016 Order and Federal Circuit Rules 28(c) and 28.1(b)(2)(A), because this brief contains 18,404 words, excluding the portions exempted by FED. R. APP. P. 32(f) and Federal Circuit Rule 32(b).

2. This brief complies with the typeface requirements of FED. R. APP. P. 32(a)(5) and the type style requirements of FED. R. APP. P. 32(a)(6) because the brief has been prepared in a proportionally spaced typeface using Microsoft Word in 14-point Times New Roman font.

Dated: March 24, 2017

/s/Charles J. Cooper
Charles J. Cooper

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

CERTIFICATE OF SERVICE

I certify that I served a copy on counsel of record on March 24, 2017

by:

- ☐ U.S. Mail
- ☐ Fax
- ☐ Hand
- ☒ Electronic Means (by E-mail or CM/ECF)

Charles J. Cooper

Name of Counsel

/s/ Charles J. Cooper

Signature of Counsel

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