

No. 142, Original

**In the
Supreme Court of the United States**

STATE OF FLORIDA,

Plaintiff,

v.

STATE OF GEORGIA,

Defendant.

ON EXCEPTIONS TO THE REPORT
OF THE SPECIAL MASTER

**SUR-REPLY IN SUPPORT OF EXCEPTIONS
TO REPORT OF THE SPECIAL MASTER BY
PLAINTIFF STATE OF FLORIDA**

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INTRODUCTION

Georgia does not seriously dispute that irrigation has skyrocketed along the Flint River; state-line flows have plummeted, especially during droughts; and Apalachicola Bay's iconic oyster fisheries suffered a historic collapse—just as sloughs along the Apalachicola River have increasingly run dry. Nor does Georgia seriously address the rampant waste and inefficiency in irrigation that its own officials have warned about and Special Master Lancaster detailed in his report. Georgia does not even back away from its own counsel's refusal to rule out a day in which Georgia says to Florida, "I'm sorry, there's no more water for you." Remand Tr. 43, Dkt. 669. Instead, relying on a framework already rejected by this Court—in this case—Georgia argues that Florida, and Apalachicola, must stand by helpless as Georgia's consumption grows and grows.

None of this makes any sense. The Framers empowered this Court to resolve precisely this sort of inter-state dispute to ensure a strong Union. This Court has stressed that "[f]lexibility and approximation"—not the kind of strict scrutiny urged by Georgia—are the key to resolving such disputes. *Florida v. Georgia*, 138 S. Ct. 2502, 2527 (2018). And, viewed under any reasonable standard, the evidence overwhelmingly shows that Florida is entitled to a decree preserving its own, *equal* right to the reasonable use of the waters at issue. *Id.* at 2515. Notably, Georgia has never disputed that Florida's use—to feed the Apalachicola and its irreplaceable ecosystem—is reasonable. Holding that Georgia's use trumps all else would grossly contravene the equitable principles governing this action.

ARGUMENT

I. GEORGIA IGNORES THE FRAMEWORK SET FORTH IN *FLORIDA*

The Court's prior decision in this case enjoys the same *stare decisis* effect as any other. Yet Georgia, like Special Master Kelly, ignores its mandate.

In particular, Georgia not only disregards that this Court remanded for the "equitable-balancing inquiry" (not to reconsider whether Florida has shown the harm necessary to *get to* that inquiry, Ga. Br. 15), but also ignores this Court's holding about the *nature* of that inquiry. 138 S. Ct. at 2518. *Florida* repeatedly stressed the need for "[f]lexibility and approximation" in the equitable-balancing analysis, including in estimating "present and future conditions." *Id.* at 2527 (citation omitted); *see also id.* at 2515, 2516. Yet Georgia, like Special Master Kelly, proceeds as if "equitable-balancing" were akin to strict scrutiny. This error pervades Georgia's response.

Georgia's attempt (at 1-2, 5, 13-15) to erase Special Master Lancaster's own conclusions also flouts *Florida*. Special Master Lancaster, among the most experienced special masters ever, summarized his conclusions on the key "facts presented at trial." Lancaster Report 31-32. Pages 31-34 of his report leave no doubt about how he assessed the evidence on the core issues at the heart of this case, including the unreasonableness of Georgia's "unrestrained" consumption. Although he observed (at 34) that *more* would need to be said if the case proceeded, he made clear his conclusions on these core issues.

This Court, moreover, recognized that Special Master Lancaster had made various "evidentiary determinations," and specifically relied on his

conclusions on harm and unreasonable use. *Florida*, 138 S. Ct. at 2517-20; *id.* at 2512. After disagreeing with his legal ruling, this Court remanded for “further” and “more specific factual findings.” *Id.* at 2508, 2526, 2527. But the Court’s emphasis on *additional* and *more specific* findings underscores it expected the new Special Master to build on Special Master Lancaster’s conclusions, not to reject or paper over them. Neither Georgia nor Special Master Kelly identifies any change in facts that justifies flipping Special Master Lancaster’s conclusions.

II. GEORGIA’S FACTUAL CONTENTIONS ARE REFUTED BY THE RECORD

More problematic for Georgia, the evidence shows that Special Master Lancaster was right about the real problem unfolding in the ACF Basin.

A. Georgia Has Harmed Florida

Like Special Master Kelly’s report (*see* Fla. Br. 31), much of Georgia’s defense ultimately rests on the head-in-sand proposition that its ever-growing consumption has not harmed Florida *at all*. The evidence, however, shows an ecosystem on the brink.

1. Oysters are just one barometer, albeit a stark one, of the damage caused by Georgia. Unable to deny that the Bay’s iconic oyster fisheries suffered an unprecedented collapse, Georgia seeks to shift the blame to overharvesting and climatic changes. Neither contention withstands scrutiny.

a. *Overharvesting*. After a five-week trial, Special Master Lancaster disagreed (at 32) with Georgia’s argument that “harvesting pressure,” rather than “increased salinity” from low flows caused the

collapse. In fighting that conclusion, Georgia—like Special Master Kelly—just ignores key evidence.

First, Georgia ignores the unprecedented influx of predators into the Bay—caused by the sudden increase in salinity due to prolonged low flows during drought periods. It is undisputed that drills and other saltwater predators feast on oysters. And the un rebutted testimony of an oyster biologist who saw the collapse unfold was that drills “passed across entire reefs, devouring every oyster.” Berrigan PFD ¶44. Oysterman Tommy Ward, another eyewitness, likewise observed “there’s probably 100 conchs for every oyster.” Ward PFD ¶5. Other scientific evidence confirmed this testimony. Kimbro PFD ¶¶4-6, 59-101; FX-413 (NOAA); Fla. Br. 9.

Georgia dismisses (at 20) Ward’s testimony as “anecdotal.” But he saw the invasion firsthand, and Special Master Lancaster, who saw Ward testify, relied repeatedly (at 9-10, 31-32) on his observations. Georgia’s attempt (at 20) to discredit Berrigan’s testimony also fails; in fact, Berrigan’s “contemporaneous reports” explained that “many reefs in Apalachicola Bay are showing the negative effects of decreased rainfall and freshwater flow rates,” and that “[predatory] drills are more abundant than at any time in recent memory,” JX-50 at 4; JX-77 at 6-7; FX-875 at 2—just as he testified.

Second, Georgia ignores the unrefuted evidence that large numbers of dead oysters remained on the bars. Berrigan PFD ¶¶51-52; 4 Tr. 979:5-982:15 (Berrigan). This is a smoking gun. Overharvesting would have *cleared* the bars of oysters. Meanwhile, the presence of dead oysters is consistent with the influx of predators (due to increased salinity). Berrigan PFD ¶51. Georgia also ignores undisputed

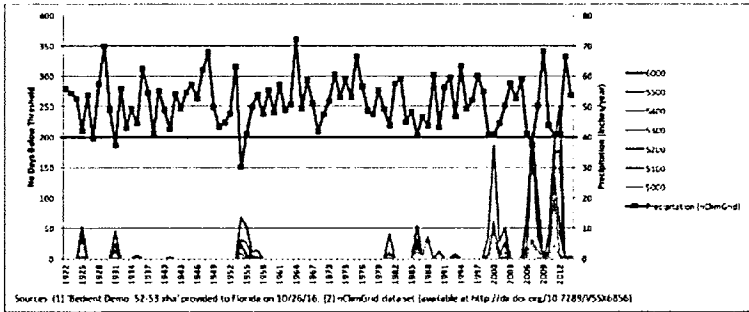
evidence that private oyster beds—not subject to public harvesting pressures—were decimated as well. Fla. Br. 25-26; *see* Amicus Br. Franklin County Seafood Workers Ass’n (FCSWA) 11-12.

Third, even with abundant reshelling and a near-cessation of harvesting for several years, the Bay *still* has not recovered. FCSWA Br. 12-14. The problem is reshelling cannot bring back oysters if the baseline conditions for oyster growth do not exist. 4 Tr. 1009:18-1010:4 (Berrigan); 6 Tr. 1488:13-19 (Sutton). Prolonged low flows have destroyed even those bars closest to the river mouth, which are critical following drought to reseeding the entire Bay. Fla. Br. 23-24, 27. This has never happened before in recorded history. Conversely, reshelling has worked in the past. 4 Tr. 1009:18-1010:4, 985:14-986:1 (Berrigan); 6 Tr. 1529:20-1530:9 (Kimbrow). That underscores that the difference-maker is the prolonged low flows.¹

b. *Climatic changes*. Georgia’s attempt (at 17-20) to pin blame on changes in rainfall likewise runs into the reality on the ground. Eighty years of data shows that, while precipitation (top of graph) has fluctuated in basically the same pattern over this period, low flows (bottom) have grown increasingly severe:

¹ Contrary to Georgia (at 17-18), Pine and Havens’ work also supports that low flows—not overharvesting—caused the crash. Fla. Suppl. Resp. Br. 9-10, Dkt. 658.

**Number of Days With Flows at the Chattahoochee Gage (USGS 02358000)
Below Certain Thresholds
and Annual Precipitation Data**



FX-893; see FX-D-17. This graph proves that rainfall shifts cannot explain the increase in severe low flows.

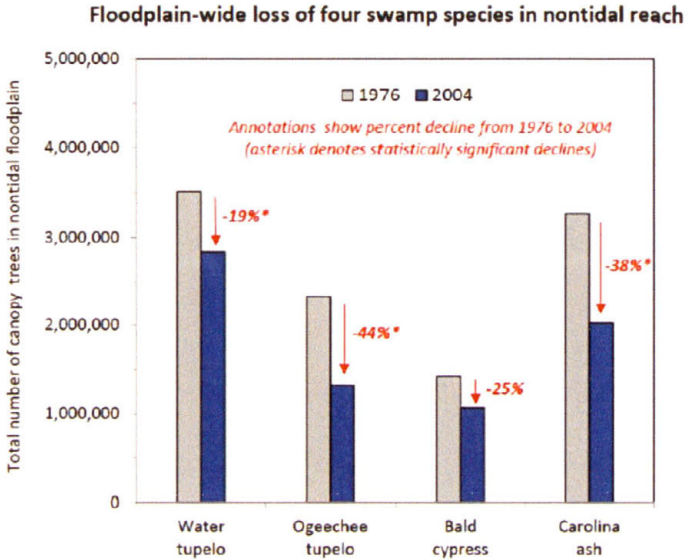
Georgia's own technical experts agreed—in 2006, 2009, 2013, and 2014—that irrigation and other consumptive uses, not climate change, caused recent severe low flows. FX-49d at 27; FX-49g. No wonder Georgia declined to call a climate expert at trial.

2. The evidence proves that Georgia's consumption has harmed the River, too. USFWS, EPA, and even Georgia biologists all assess the health of floodplain systems by measuring aquatic habitat inundation—which, here, shows significant harm from reduced flows to the River. Fla. Suppl. Resp. Br. 10-11 (citations); see FX-599 (USFWS and EPA); FX-50 (Georgia's Jones Ecological Research Center); FX-36 (Georgia DNR). Entire sloughs are drying that "hadn't gone dry before." 2 Tr. 278:17-280:16 (Hoehn).

Ignoring this evidence, Georgia claims (at 22) there is no "population-level harm." But *extinction* is not required. And, here, there is "indisputable evidence of significant increases in harm to many

populations, including mussels, fish, and trees of the floodplain forest over the past decades as flows in the Apalachicola River have decreased.” Allan PFD ¶3b; *see id.* ¶¶30-64; 3 Tr. 572:20-573:9 (Allan) (emphasizing harm caused by “loss of habitat”).

Tree species, in particular, have suffered:



Allan PFD Fig. 22. This is doubly harmful because the disappearing forest provides “essential habitat” for fish, mussels, and other species. *Id.* ¶56.

Georgia likewise ignores the stark evidence of mussels lying stranded in dried-up sloughs:



Dead mussels stranded in Swift Slough, July 3, 2006. This is a true and correct copy of a photo taken by me, and accurately represents conditions at Swift Slough on July 3, 2006.

Hoehn PFD ¶¶48-49. Georgia (at 23) dismisses this evidence as “isolated examples.” But Swift Slough (above) is “representative” of “literally hundreds of sloughs” where “water no longer enters the slough.” 3 Tr. 580:18-581:18 (Allan); Hoehn PFD ¶63.²

These are all harbingers of something much worse, if nothing is done. The mounting stress from low flows is pushing the entire ecosystem—one of the most unique estuarine environments remaining in the United States—to a “tipping point” from which it may never recover. 3 Tr. 563:16-564:17 (Allan).

² Georgia’s attempt (at 22-23) to blame these worsening conditions on the Corps’ dredging fails. Dredging ended nearly two decades ago, was confined to limited parts of the River, and sand has since refilled those areas. Kondolf PFD¶¶34, 40-42; Fla. Post-Trial Resp. Br. 42-44, Dkt. 633.

B. Georgia's Ever-Increasing Consumption Is Grossly Unreasonable

After denying any responsibility for the damage in Apalachicola, Georgia denies it has a consumption problem at all—ignoring two decades of internal Georgia statements that its mounting agricultural use is indeed a profound problem. *Infra* at 14-15.

1. To begin with, Georgia does not dispute that Special Master Kelly grounded (at 54) his finding that Georgia's consumption was reasonable on his erroneous belief that "Florida has not shown that the oyster collapse was caused by Georgia's consumptive use." Nor does Georgia deny "that 'the true test' of reasonable use is whether it injures other users." Kelly Report 54 (quoting *Tyler v. Wilkinson*, 24 F. Cas. 472, 474 (C.C.D.R.I. 1827)). The overwhelming evidence that Georgia's use *has* harmed the Apalachicola thus alone proves that Georgia's consumption—however measured—is unreasonable.

2. Georgia's argument that its consumption is nevertheless reasonable is not credible.

a. Georgia rests this argument on the implausible notion that it consumes but a tiny fraction of water in the region—"just 2.4% of state-line flow in wet or normal years and 6.1% of state-line flow in dry years." Ga. Br. 3-4, 11, 34. But Georgia's own lead witness on consumption admitted on cross-examination that Georgia's consumption is equal to approximately *one-third* of all river flows at the state line during peak months of recent droughts. 13 Tr. 3370:14-3371:15 (Zeng). Special Master Kelly himself (at 46-47) recognized as much. And even that figure dramatically understates Georgia's consumption. FX-D-2 (above 60% of flows in drought summers).

This is critical, because it is consumption (and flows) during drought periods that matters most.

b. Georgia's tiny consumption estimates also ask this Court to ignore what is happening on the ground. Irrigation has indisputably exploded in the region—increasing more than ten-fold since 1970. Lancaster Report 33. As Special Master Lancaster explained, “Georgia’s own estimates show a dramatic growth in consumptive water use for agricultural purposes.” *Id.*; see Fla. Br. 10-11, 33.³ It is equally undisputed that irrigation imposes a major drain on water. As one of Georgia’s own officials testified, “in a drought year, a few thousand farmers will still consume more water than six or seven million people in metro Atlanta will.” FX-15 at GA00181626.

Yet, Georgia’s position is that the drastic increase in irrigation has had virtually no impact on consumption. Once again, reality intervenes. USGS gauge data shows stateline flows during recent drought summers—when water is most crucial—have dropped by 4,000-5,000 cfs compared with (more severe) historic droughts. Hornberger PFD Table 1; Fla. FoF ¶¶3-7, Dkt. 652; Fla. Suppl. Br. 9-10, Dkt. 651. Worse, as even Special Master Kelly recognized (at 53), Georgia’s consumption “only increases” in severe droughts. That is patently unreasonable. Restatement (Second) of Torts § 850A cmt. j (1979) (riparian user must *reduce* use during drought to accommodate other reasonable uses).

Remarkably, Georgia claims (at 32) that plummeting flows have nothing to do with the

³ The latter chart (at 33)—used in Florida’s opening statement at trial—simply plots data from Dr. Flewelling’s analysis (FX-269), incorporated at Hornberger PFD ¶¶11, 74-80.

corresponding spike in irrigation; instead, Georgia says, this is just a product of “multi-year droughts and a shift in intra-annual rainfall patterns.” But as discussed, decades of precipitation and flow data squarely refutes Georgia’s claim. *Supra* at 5-6; see 10 Tr. 2446:23-2450:1 (Lettenmaier, climate expert); Lettenmaier PFD ¶¶21-26. Instead, the evidence confirms the obvious: the spike in irrigation is depleting flows, especially during critical summer months. Hornberger PFD ¶¶3(e)-(g). Georgia’s own technical experts confirmed that irrigation, not climatic change, is the culprit. FX-49g; FX-49d at 27.

The evidence also refutes Georgia’s “other rivers” argument (at 18-19, 33). A USGS comparison of low flows in the Flint River Basin (heavily irrigated) with the Chipola River in Florida (limited irrigation) found that, whereas there was a 74% *decline* in flows in the former in recent decades, there was only a 7% decrease in the latter. Fla. Post-Trial Br. 20, Dkt. 630. Similarly, Georgia scientists found only a “small” decrease in Suwannee River flows; that river is subject to the same (if not worse) climatic trends as Spring and Ichawaynochaway Creeks, but is only minimally impacted from irrigated agriculture. FX-319 at 33, 90; FX-320 at GA00123108.

Importantly, Georgia’s analysis also looks at *annual* flows, not *summer* flows, rendering it meaningless for comparing low flows in summer months when irrigation is most acute. FX-785 at 34 (Hornberger Report). That flaw pervades many of Georgia’s arguments to this Court. Repeatedly, the State tries to mask the extent of its consumption by refusing to analyze that consumption during summer months and drought periods. Yet, again, that is the

critical period, because that is when water is most urgently needed to sustain adequate flows.

c. Unable to account for the explosion in irrigation, Georgia attempts to shift the focus to a battle over which State's experts best estimated the exact amount of water Georgia is consuming. But this is precisely the sort of determination where flexibility and approximation—the hallmarks of the equitable-balancing inquiry—matter most. *Supra* at 2. Whatever the precise amount Georgia consumes, the evidence overwhelmingly shows that Georgia's insatiable consumption for irrigation during drought periods in particular is unreasonable.

In any event, Florida amply demonstrated that Georgia's "bottom up" model for estimating consumption—which produces Georgia's ridiculously small consumption estimates—rests upon deeply flawed data and assumptions. For example:

- Georgia's estimate of irrigated acres here (582,000) is nearly *half* its prior estimates. *Compare* Ga. FoF ¶37, Dkt. 655, with FX-219 at 9 (920,000), and FX-D-24 (826,877).
- Georgia's count excludes 90,000 illegally irrigated acres that Georgia does not deny exist. *E.g.*, Sunding PFD ¶46.
- Georgia excludes pumping from other aquifers, even though its experts admitted this can impact flows. 15 Tr. 3769:25-3770:6 (Panday); 13 Tr. 3215:3-11 (Zeng).
- Georgia's database excludes "rectangular fields likely served by non-center pivot irrigation systems." Sunding PFD ¶29.

- And Georgia fails to account for farm pond evaporation that GWRI estimated could account for 1,200 cfs *alone*. Fla. Br. 35.⁴

All told, GWRI found that Georgia's consumption estimates omitted "up to 70% of the actual crop water requirement." Fla. FoF ¶24 (quoting FX-534 at 10).

Conversely, Florida's sophisticated "rainfall run-off model," which shows Georgia consuming 4,000-5,000 cfs, is sound and actually accounts for what is happening on the ground. Fla. Br. 34. That model was endorsed by the USFWS, which concluded that Georgia's consumption estimate "does not accurately represent the magnitude ... of flow extremes" (extreme low flows), and recommended an "alternative model"—the same rainfall runoff model that Florida used here. Fla. Suppl. Resp. Br. 8 (alteration in original) (citation omitted).

Georgia claims (at 29-30) that Florida's models are "unreliable" and says Dr. Hornberger was "discredited." But Special Master Kelly—who never saw Dr. Hornberger testify—had no basis to make any credibility finding. Special Master Lancaster, who *did* see him testify, relied (at 33) on his testimony in discussing Georgia's "consumptive water use." Moreover, Dr. Hornberger's estimates—unlike Georgia's—are backed up by hard data, including state-line flow data; basin yield data (which measures the ratio of streamflow to rain fall); and the

⁴ Georgia's hydrology witness did her own analysis of "farm pond evaporation," but Georgia—tellingly—refused to reveal her findings, claiming they were privileged. 13 Tr. 3368:6-3369:2 (Zeng). Georgia also had previously instructed farmers to cut the impact of farm pond evaporation by 50%, but failed to implement that restriction. JX-45 at 45.

admissions of Georgia's own officials regarding its rampant consumption. *Supra* at 9-13; Hornberger PFD ¶¶63-65 & Tables 4-5; FX-49b at GA00278839.⁵

d. Georgia also fails to account for the admissions of its own officials, who have warned for decades about the "significant reduction" in flows from irrigation. FX-2 at GA02257045; *see* Fla. Br. 36-39. Georgia (at 35) dismisses these admissions as mere "1990s-era statements," as if the 90s don't count. But Georgia officials and technical advisors have continued to sound such alarms—including its lead consumption witness at trial (Zeng). FX-49b at GA00278839 (2014—"Our groundwater levels suffer from heavy irrigation pumping, particularly during drought."); FX-82 at 1 (2011—describing lack of aquifer recovery as "stunning," and conceding that "groundwater pumping from the Upper Floridan Aquifer has a significant and quantifiable effect on surface water flows in the Flint River and its major tributaries") (Zeng). This is powerful evidence that Georgia's consumption is unreasonable.

3. Georgia also has no answer for its waste. Georgia does not deny that this Court has held that "wasteful or inefficient uses [of water] will not be protected." *Colorado v. New Mexico*, 459 U.S. 176, 184 (1982). Yet it essentially ignores the waste and inefficiency detailed by Florida (at 38-42, 48), which, if eliminated, would generate *hundreds* of additional

⁵ Georgia makes much (at 29) of *short-term* variations between what Florida's model predicts and actual flows during the calibration period. But over time, multiple models used by Florida's experts clearly and reliably show the hydrologic changes caused by Georgia's consumption. 8 Tr. 2010:20-2012:7-15 (Hornberger); 10 Tr. 2402:6-2404:7 (Lettenmaier).

cfs at critical times. Instead, Georgia's only response (at 50) is to protest that Florida has "cherry-pick[ed]" examples. But waste is waste. And as Special Master Lancaster concluded (at 33-34), Georgia's whole approach to irrigation is characterized by inefficiency and indifference. That is, by definition, unreasonable. Restatement (Second) of Torts § 850A, cmt. h.⁶

C. Florida Would Significantly Benefit From A Decree

When it comes to the benefits of a decree, Georgia again asks this Court to ignore the obvious.

1. Like Special Master Kelly, Georgia tries (at 8, 11, 38, 42-43) to negate the significant benefits of a decree upfront by arguing that the Corps would never allow any additional water created by a cap through. That is incorrect. As Special Master Lancaster found (at 53-55), the Corps has discretion to let additional water through—without even changing its rules. Fla. FoF ¶40. More important, Georgia proceeds as if the *dissent* in *Florida* prevailed on this issue. 138 S. Ct. at 2543-44 (dissent). But the *majority* held—based on the Corps' own representations—that the equitable-balancing inquiry should proceed on the premise that the Corps "will work to accommodate" a decree. *Id.* at 2526. That holding, of course, controls here.⁷

The United States—which does not disavow its representations to this Court about accommodating a

⁶ It is so common for irrigation systems to spray water past fields onto roads that this is known as a "South Georgia car wash." 14 Tr. 3615:18-3616:25 (Masters).

⁷ Georgia's attempts to erase the benefits of a decree also rely (at 40-42) on its fancifully miniscule consumption estimates. As discussed, however, those estimates are implausible.

decree—doubles down (at 16, 18) on the circular reasoning of Special Master Kelly that there is no need to consider whether the Corps would modify its operations because Florida would not be entitled to a decree anyway. But the Special Master’s conclusion that Florida is not entitled to a decree is based on numerous mistaken premises, including that Florida has suffered no harm and Georgia is consuming next to nothing. Fla. Br. 31, 43-44. The United States does not defend any of those factual conclusions.

The United States also complains (at 18) that changing its existing Manual would entail “additional administrative proceedings.” But the Corps’ own regulations provide that manuals “shall be revised as necessary to conform to changing requirements,” including changes in law (which would include a decree here). Engineer Regulation 1110-2-240, at 3-1(e) (2016); *see Florida*, 138 S. Ct. at 2526. And the United States has never given one reason why having *additional* water in the system due to a cap would reduce its ability to meet statutory objectives it found satisfied with *less* water in its Manual.⁸

2. Of course, there is a reason Georgia tries to short-circuit any consideration of benefits: the evidence overwhelmingly confirms that restoring the minimum flows under which Apalachicola has survived would greatly benefit the ecosystem.

⁸ Georgia’s suggestion (at 44) that Florida somehow waived its “reasonable modifications” argument is incorrect. Florida explicitly asked for fact-finding on this issue. Yet the Special Master refused, reasoning that such evidence would be “entirely speculative”—despite *Florida’s* holding that the Corps *will* accommodate a decree. Dkt. 645 at 5-6. Nonetheless, Florida argued that the Corps could modify its Manual to allow the water saved by a decree through. Fla. Suppl. Br. 28.

The increase in freshwater flows—and corresponding reductions in salinity—generated by a decree would aid the oyster population by driving out predators, reducing disease, and increasing nutrients. Kimbro PFD ¶¶7, 101; 6 Tr. 1570:24-1572:2 (Kimbro); 7 Tr. 1884:6-1885:7 (Glibert). An additional 1,000 cfs in key periods would recreate the minimum flows under which the Apalachicola survived for centuries; the Bay consistently recovered from droughts so long as flows did not stay below 6,000 cfs for months or years. Fla. Suppl. Br. 31-32; Fla. Br. 45.

The following demonstrative shows that, in many months, even 500 cfs or less can make the difference in avoiding the conditions—sustained flows below 6,000 cfs—that caused the 2012 oyster crash⁹:

⁹ This demonstrative, which reproduces excerpts of record evidence (FX-D-1), was “received” by the Special Master for the hearing below, Dkt. 667, and was discussed at the hearing, Remand Tr. 14-17. The history of the Flint River Drought Protection Act (FRDPA) is discussed in Fla. FoF ¶26.

How Much Additional Flow is Needed to Prevent a Crash – Tipping Point



USGS 02358000 APALACHICOLA RIVER AT CHATTAHOOCHEE FLA

YEAR	00060, Discharge, cubic feet per second, Monthly mean in ft ³ /s (Calculation Period: 1928-10-01 > 2016-01-31)											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec

Georgia limited irrigation under the FRDPA in 2001-02, and the fishery did not crash.

1999	15,880	22,680	17,280	10,880	8,807	11,040	12,040	10,870	6,548	5,727	6,246	7,576
2000	11,550	16,650	14,570	17,330	8,413	4,826	5,117	5,806	5,889	5,659	6,361	10,300
2001	14,690	11,990	57,190	50,060	11,560	10,600	11,130	9,585	7,173	6,130	5,975	7,327
2002	9,036	13,770	14,770	13,890	8,326	6,578	6,084	5,735	6,991	8,208	17,300	20,130

Georgia declined to implement the FRDPA in 2007-08, or in 2011-12, and the Bay crashed in 2012.

2006	25,040	23,450	26,530	16,120	13,770	6,953	5,773	5,738	6,969	6,160	12,120	9,153
2007	21,310	18,940	19,490	13,540	6,869	5,153	5,351	5,154	5,343	5,133	4,978	5,981
2008	14,770	29,410	24,020	18,240	9,048	5,409	5,863	13,520	8,945	7,415	19,630	29,420
2009	17,650	11,400	37,120	66,960	22,220	14,520	8,245	8,641	21,890	22,640	36,440	74,950
2010	54,220	61,170	41,840	19,460	29,570	14,130	9,203	8,097	5,977	7,158	7,724	9,836
2011	10,820	20,050	21,960	19,640	7,521	4,781	6,244	5,464	5,734	5,346	5,651	5,196
2012	11,310	11,050	16,240	9,513	5,352	5,525	5,498	5,438	5,212	5,381	5,316	5,418

FIG-D-1 (Chattahoochee gage flows)

Ensuring flows above 6000 cfs would restore the historical conditions in which oysters survived and prevent the downward spiral in the Bay.

In response, Georgia (at 2, 11, 46) clings to a single figure—repeatedly claiming that oyster biomass would increase only 1.4% in the *entire Bay*. But that is doubly false: *first*, this estimate applied only to a *single bar*—not “the Bay” (at 2, 11)—and, *second*, that

bar was located away from the river mouth. 6 Tr. 1571:1-19 (Kimbrow). Closer to the river mouth, there would be a “much more pronounced benefit to the oyster populations.” 6 Tr. 1571:10-19 (Kimbrow). And bars “closer to the River’s mouth” have a much greater impact on reseeding the Bay. Fla. Suppl. Resp. Br. 15; see FX-797 at 13-14 (Kimbrow Report); 6 Tr. 1572:1-2 (Kimbrow). The 1.4% figure was thus “very, very conservative” in estimating the benefit of just an additional 1,000 cfs. 6 Tr. 1571:1-1572:13 (Kimbrow). More than 1,000 cfs would only increase that benefit.

Georgia is similarly mistaken (at 46-47) that salinity changes from a remedy would be too small to make a difference. Comparably small *increases* in salinity led to the crash; restoring flows and salinity to levels closer to historical conditions would facilitate recovery. As Dr. Glibert testified, in East Bay a “remedy would be particularly effective,” as a 1-ppt difference there means a 20-30% change in salt stress. 7 Tr. 1869:23-1870:12. And when the salinity stress is alleviated, there are a number of “positive reinforcing feedbacks.” *Id.* at 1884:9-16 (Glibert). The system “will begin not only to recover, but that recovery can be accelerated.” *Id.*; see Kimbro PFD ¶7 (“[T]he oyster fishery in Apalachicola Bay can recover” with additional freshwater flows.).

In *New Jersey v. New York*, 283 U.S. 336 (1931), this Court rejected an almost identical argument to Georgia’s, finding that the harm wrought by a 1.5-ppt salinity increase justified a decree. Fla. Br. 30. Georgia claims (at 24) that “New Jersey had established at least some damage to navigation, agriculture, municipal water supply, shad fisheries and industrial uses” (citation omitted). But every one of those other harms was deemed “immaterial.” *New*

Jersey Report 203-05 (No. 16, Original). Besides oysters, the *only* other harm that was “somewhat more than slight” was to “recreational uses.” *Id.* at 205. Here, a decree would not only save the oysters, but numerous other species, too—greatly surpassing the benefits held sufficient in *New Jersey*.

A decree would also greatly benefit the River. Indeed, just an additional 300-500 cfs during key periods could reduce harm to the River ecosystem, significantly benefit existing flora and fauna, and halt the cycle that currently threatens irreversible harm. Allan PFD ¶¶3d, 26, 67; Hoehn PFD ¶¶37-56; Fla. Suppl. Resp. Br. 11. As Dr. Allan explained, there is “[n]o doubt whatsoever that more water will benefit the system,” and a “remedy solution as is asked for in this case would be a wonderful, positive step towards protecting this valuable ecosystem, this flora and fauna, for future generations.” 3 Tr. 592:16-593:4, 597:20-598:1; *see* Fla. Suppl. Resp. Br. 16 (citations).

Moreover, a decree would prevent the situation from *worsening*. As Florida explained (at 30-31), eliminating future harm also counts in the equitable-balancing analysis. Georgia offers no response. And with no decree, Georgia’s consumption will only grow, Fla. FoF ¶28; *see* Lancaster Report 34, and the ecosystem will pass the point of no return, Allan PFD ¶3f; *id.* ¶¶65, 72-73; Glibert PFD ¶5 (“If the trend of increased low flows continues, harm to the whole ecosystem will become increasingly difficult to reverse.”); 7 Tr. 1883:17-1884:5 (Glibert) (discussing downward spiral). Simply halting the further—and likely irreversible—destruction of this one-of-a-kind ecosystem is itself an invaluable benefit of a decree. Without one, Apalachicola faces a death sentence.

3. A decree also would greatly benefit Florida by “delaying or shortening” drought operations by the Corps—staving off the most harmful periods of severe low flows. Fla. Br. 44. The United States itself recognizes (at 20) this benefit (though declines to *quantify* it), and this Court has, too. *Florida*, 138 S. Ct. at 2520. In arguing otherwise, Georgia relies (at 43) on the *Revised Manual*. But the *Revised Manual* was issued after trial, and Special Master Kelly unreasonably denied Florida’s request for fact-finding on the *Revised Manual*, finding that it was “unlikely” to change anything. Order at 5-6, Dkt. 645. But without fact-finding, how could he say? In any event, the record evidence shows that a decree would stave off drought operations at the most critical periods—which alone would be a great benefit to Florida. Fla. Suppl. Br. 29; Fla. FoF ¶¶42-43; Bedient PFD ¶50, Demo.13. And Georgia itself conceded (Remand Tr. 48) that the Corps “could change” when drought operations kick in—only adding to the benefit.

In that regard—and in replenishing the system generally—a cap producing more water even in non-drought periods would have immense benefit.¹⁰

D. Georgia Grossly Exaggerates The Costs Of A Decree

Georgia’s cost estimates also stray from reality.

1. Starting with the premise that it consumes only a tiny amount of water, Georgia claims (at 49) it would have to “halt all irrigation in the ACF Basin” to generate the water needed for a remedy. Dr. Stavins likewise assumed zero irrigation (Stavins PFD ¶¶60-

¹⁰ Contrary to Georgia (at 7) Florida presented extensive evidence of harms in non-drought years. Remand Tr. 18-19.

61 & Demo.9; 17 Tr. 4463:2-13 (Stavins)), and that farming on the land would cease altogether (FX-784 ¶84 (IMPLAN model)); 17 Tr. 4463:14-4464:15 (Stavins); 11 Tr. 2802:24-2804:9 (Sunding)). Once this absurd premise is corrected (*see supra* at 9-14), it is clear that the cost of the commonsense measures proposed by Florida would be a fraction of Georgia's inflated cost estimates. Fla. Suppl. Resp. Br. 16-19 (\$9-35 million for 1,000-2,000 cfs remedies).

Dr. Stavins did not even consider such measures—including planting more water-efficient crops, using variable-rate irrigation, or reducing water loss from evaporation—in making his estimates. 17 Tr. 4444:10-24, 4451:17-4458:15 (Stavins). Instead, he just assumed that crops would be lost *altogether*—even though most ACF farmers use no irrigation at all. Fla. Suppl. Br. 35-36. The fact is farming and reasonable water use can co-exist in the Flint Basin.¹¹

2. Georgia also fails to account for reforms that would cost it little to nothing. As discussed noted (*supra* at 14-15), hundreds of additional cfs in flow could be generated—costlessly—by eliminating wasteful irrigation practices. Fla. Suppl. Resp. Br. 18. Yet Georgia—like Special Master Kelly—ignores these measures. Georgia also does not deny that 15% water savings could be saved almost costlessly through variable rate irrigation, and a further 15%

¹¹ Georgia claims (at 49) that Dr. Stavins *did* consider “limiting irrigation in drought years.” But he considered the cost of *eliminating irrigation altogether* at 20% of farms—not the cost of *reducing* irrigation by 20% across all farms. Stavins PFD ¶66, Demo.12. As Dr. Stavins conceded, he did not “look to see what would happen if those farmers were required to irrigate less.” 17 Tr. 4463:2-4468:15 (Stavins).

savings could be had from irrigation scheduling and crop rotation. Fla. Br. 51. Nor does Georgia dispute that these measures are feasible. 17 Tr. 4443:7-4456:11 (Stavins). Indeed, Georgia declined to call its designated agriculture expert at trial.

Moreover, the costs of ending waste and inefficiency cannot count against a decree, because—as this Court has held—waste and inefficiency are not protected. Fla. Br. 41-42. Georgia argues (at 50)—without any support—that its wasteful practices cannot be considered in isolation. That makes no sense. But, in any event, Georgia’s waste—“in the aggregate,” *id.*—accounts for *hundreds* of lost cfs. Fla. Br. 48-49; Fla. Post-Trial Br. 81-83, Dkt. 630.

3. Shifting gears, Georgia claims (at 48-49) that Florida’s expert (Dr. Sunding) improperly excluded “welfare costs.” But those costs were limited to reasonable restrictions on watering lawns in Atlanta during drought. Sunding PFD ¶¶76-79. There are *no* welfare costs associated with the irrigation-related measures that form the core of Florida’s proposed remedy and would themselves provide relief. Fla. Suppl. Resp. 18-19.¹² Georgia’s attack (at 49) on Dr. Sunding’s estimates for buying irrigation permits (which Georgia law already allows) is also misguided: Dr. Stavins’ estimates for these permits exceeded the cost of *the land itself*. Compare Stavins PFD ¶108 & Demo.17, with FX-D-49, and FX-927.

4. Meanwhile, Georgia again ignores the statements of its own officials, who previously recommended similar measures and admitted that a minimum-flow requirement of 6,000 cfs was

¹² The complaints of the Atlanta-based amici about the alleged costs of limiting municipal uses are thus irrelevant.

“feasible.” Fla. Br. 49; Fla. FoF ¶34. That is powerful, if not conclusive, evidence that Georgia’s sky-high estimates are overblown, and that the cost of a decree is, instead, eminently reasonable. Sunding PFD ¶¶89-90 & Tables 4-5; Fla. Suppl. Resp. Br. 17. Moreover, these costs would be miniscule in relation to the billions Georgia claims (at 4) are generated by agribusiness along the Flint—the vast majority of which would be unimpacted by a remedy.

III. FLORIDA IS ENTITLED TO AN EQUITABLE APPORTIONMENT

By any measure, the benefits of a decree substantially outweigh any harm. *Florida*, 138 S. Ct. at 2527. This Court therefore should hold that Florida is entitled to a cap stemming Georgia’s consumption and remand for the Special Master to consider the particular form of the decree, after giving the parties an opportunity to propose a decree. As explained (*supra* at 17-21), even relatively small amounts of water in key periods would greatly benefit Apalachicola. Such a decree would preserve *both* States’ equal right to the reasonable use of the waters at issue—leaving Georgia ample water for irrigation but also ensuring the minimum water needed for the Apalachicola and its resources to survive.¹³

This Court has never found harm and inequitable conduct—both abundantly present here—yet declined

¹³ Georgia argues (at 39-40) that Florida bears the burden of proving the balancing issue by clear-and-convincing evidence (CCE). But imposing such a burden would violate the “[f]lexibility and approximation” demanded by the balancing inquiry. *Florida*, 138 S. Ct. at 2527. Indeed, in *Colorado*, the Court held that, once a State shows by CCE that a challenged use would cause it “substantial injury” (as Florida has here), the

an equitable apportionment. In seeking that unprecedented result, Georgia, like Special Master Kelly, advances an all-or-nothing regime, essentially arguing that it is entitled to consume as much as it wishes for irrigation, regardless of the long-term consequences for Florida—which is exactly what Special Master Lancaster (at 34) found Georgia’s position to be. But this ignores *Florida’s* teaching that *each* State has an *equal* right to the reasonable use of the waters. 138 S. Ct. at 2513.

Importantly, Georgia has never disputed that Florida’s own use—to nourish an ecosystem so unique it is recognized as a “United Nations Biosphere Reserve,” Steverson PFD ¶9—is reasonable. Instead, it suggests (at 4, 34) that the region with the most people or biggest business necessarily wins. Yet, States can draw different judgments about the best use of water, and this Court’s task is to balance and apportion those interests—not hold that one use trumps the other. *New Jersey*, 283 U.S. at 342.

Georgia’s own riparian law rejects such an all-or-nothing approach. *Cf. Colorado*, 459 U.S. at 183 (state law informs balancing). In Georgia, riparian owners have a “common property right in the waters of the stream, and the necessities of the business of one cannot be the standard of the rights of another, but each is entitled to the reasonable use of the water

burden *shifts* to the opposing State to show that its usage nevertheless is equitable. 459 U.S. at 187 n.13. Although Georgia casts (at 12) Florida as the diverting state, it is *Georgia* that has been diverting ever-increasing amounts of water for agriculture. Georgia cannot occupy a better position than Colorado simply because it took water first and forced Florida to bring suit to stop its rampant consumption. In any event, Florida’s evidence meets any standard.

with respect to the rights of others, and any unlawful interference by one with the enjoyment by another of such common property right gives a cause of action." *Roughton v. Thiele Kaolin Co.*, 74 S.E.2d 844, 846 (Ga. 1953). This right is "as much property as is the right to have the hills or forests remain in place." *Price v. High Shoals Mfg. Co.*, 64 S.E. 87, 89 (Ga. 1909).

In the end, denying Florida relief not only would spell doom for Apalachicola, it would set the bar so high for an equitable apportionment that it would effectively invite States to raid water as it passes through their borders—"regardless of the long term consequences" for the region. Lancaster Report 34. As water across the nation becomes increasingly scarce, that is a recipe for the very conflict that the Framers sought to defuse by authorizing this Court to equitably apportion resources, where, as here, it is clear one State is taking more than its fair share.

CONCLUSION

The Court should grant the requested relief.

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