

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

STATE OF FLORIDA,

Plaintiff,

v.

STATE OF GEORGIA,

Defendant.

Before the Special Master

Hon. Ralph I. Lancaster

**STATUS REPORT OF THE STATE OF GEORGIA
JANUARY 8, 2016**

This report constitutes the twelfth monthly status report filed by the State of Georgia pursuant to Section 4 of the Case Management Plan.

I. GENERAL STATUS

Georgia continues to focus on resolving outstanding discovery issues, conducting and defending depositions, and preparing expert reports. In compliance with the Special Master's order at the last status conference, Georgia has provided deposition dates to Florida for its witnesses. Georgia has also identified its designees for Florida's 30(b)(6) topics. In addition, Georgia has continued to work cooperatively with Florida to facilitate discovery. For example, Georgia has worked with its state universities to collect, review, and produce emails for Dr. Aris Georgakokos, Dr. Mark Masters, and Dr. James Hook, the three professors from whom Florida requested emails in prior status reports. Georgia similarly worked with Florida to run multiple

sets of search terms on various document custodians and reported back to Florida on the results of those searches in an effort to help Florida narrow its discovery requests to focus on the most relevant materials. Georgia has also assisted Florida, at Florida's request, in identifying numerous specific documents and databases within Georgia's production that will assist Florida in its deposition preparation.

Although the parties continue to meet and confer about discovery, Georgia remains concerned about a number of issues that it has previously raised in multiple meet and confers with Florida.

First, Florida refuses to make Florida's Commissioner of the Department of Agriculture and Consumer Services (FDACS), Adam Putnam, available for a four-hour deposition, even though Mr. Putnam's testimony is necessary and is directly relevant to Florida's allegations in this suit. As Commissioner of FDACS, Mr. Putnam has supervision and management responsibility for Florida's fisheries and also is involved in development and implementation of Florida's state water policy. More specifically, Mr. Putnam authored a letter that formed the basis of Florida's request that the United States Department of Commerce declare a federal fisheries failure for the oyster fishery in the Apalachicola Bay in 2012—the same fishery failure Florida alleges Georgia caused in its complaint. Though it had no obligation to do so, at Florida's request, Georgia deferred Mr. Putnam's deposition while it sought additional factual information about the letter by deposing multiple other Florida witnesses who were likely in a position to have personal knowledge about the letter and be able to provide relevant testimony. None of those witnesses, however, was able to testify about the drafting of the letter or the assertions contained therein. Georgia therefore seeks an order compelling Mr. Putnam to testify pursuant to the subpoena it served on October 7, 2015. Mr. Putnam has first-hand knowledge of

key facts at issue and no other witness can testify as to what was in his mind at the time he made decisions and statements as Commissioner that are directly relevant to this case.

Second, Georgia is concerned about the sufficiency of the testimony from Florida's 30(b)(6) designees. Georgia has now deposed three of Florida's 30(b)(6) witnesses who were designated to provide testimony on 10 topics. None was properly prepared to provide testimony on behalf of Florida. For example, one of Florida's 30(b)(6) witnesses admitted that even though he had no personal knowledge of one of his designated topics, he made no attempt to speak to others with personal knowledge to prepare for his 30(b)(6) testimony, as is his obligation as a 30(b)(6) witness. Another of Florida's 30(b)(6) witnesses relied almost exclusively on a 35-page attorney-drafted script for his testimony, even though the witness was not involved in preparing the script and could not explain where the information in the script came from or attest to its accuracy. As a result, in light of Florida's waiver of privilege and work product protection over the information in that script, Georgia has requested discovery related to that script. Florida has refused this request.

Third, on November 24, 2015 Georgia sent a letter to Florida outlining deficiencies in over half of Florida's responses to Georgia's First Set of Requests for Admission (RFAs). Although the supplemental responses Florida finally provided on December 30, 2015, addressed some of Georgia's concerns, the majority of Florida's responses identified as deficient in Georgia's letter remain inadequate and non-responsive. For example, Florida refuses to admit or deny the truth of its own factual representations to the U.S. Department of Commerce when Florida sought the same declaration of a federal fisheries disaster referenced above. Florida also refuses to admit or deny basic facts such as whether its own statutes and regulations "prescribe rules for applying for a water use permit." Georgia sent a second letter to Florida on January 8,

2016, discussing its ongoing concerns with Florida's responses. These outstanding issues prevent Georgia from narrowing the factual issues that need to be litigated in this case, consistent with the Special Master's admonitions to the parties.

Further details about Georgia's discovery efforts are set forth below.

II. STATUS OF GEORGIA'S DISCOVERY EFFORTS

A. Georgia's Production of Documents and Data to Florida.

Although document discovery has formally closed, Georgia continues to cooperate with Florida to facilitate the production of documents. Since the last status conference, Georgia has produced emails from all of the university professors Florida identified in its last status report. To be sure, Florida sought emails from university professors notwithstanding its initial agreement that it would *not* seek emails from university professors in Georgia. Notwithstanding the substantial discovery burden these requests—which required additional collections, reviews, and productions—placed on Georgia, Georgia nonetheless agreed to work with Florida to narrow the scope of Florida's requests in a good faith effort to resolve this discovery dispute. The parties ultimately agreed on a unique set of search terms for each of the professors from whom Florida sought email in an effort to narrow the universe of emails to be reviewed and potentially produced. Georgia then ran search terms on email accounts from Dr. Georgakakos and Mark Masters and agreed to review and produce responsive, non-privileged emails from those professors on a rolling basis. Moreover, Georgia volunteered to produce all of the responsive, non-privileged emails collected from Dr. James Hook's email account. As Georgia told Florida two months ago in its November 6, 2015 objections and responses to Florida's subpoena, Dr. Hook retired from the University of Georgia in 2011 and thus has a limited volume of responsive material. Georgia has collected and produced the emails relating to the Apalachicola-Chattahoochee-Flint River Basin within Dr. Hook's possession, custody, or control.

Georgia has now produced emails and email attachments for all of the professors Florida requested in its last status report, including: 15,000 pages of documents for Dr. Martin Kistenmacher at Georgia Tech University, 13,600 pages of documents for Dr. Aris Georgakakos at Georgia Tech University, 1,800 pages of documents for Dr. James Hook at University of Georgia, and 44,000 pages of documents for Mark Masters at Albany State University. In addition to these email productions, Georgia has now produced four native models from Georgia Tech's Water Resources Institute totaling approximately 1.5 terabytes of information and over 200,000 pages of documents.

Georgia has also worked with Florida since the last status report to address additional discovery requests on a case-by-case basis. For example, Florida asked Georgia for data that the Georgia Soil and Water Conservation Commission ("GSWCC") had collected from its telemetry metering program. Georgia voluntarily searched through numerous electronic folders in GSWCC's district offices, collected over 4,000 different electronic files that pertain to telemetry data, and produced those files to Florida on December 14, 2015. Georgia also intends to produce early next week some remaining documents collected from Mark Masters pursuant to a subpoena duces tecum served on Mr. Masters.

In addition, when, on multiple occasions, Florida has been unable to locate certain documents it seeks to review within the documents that Georgia has already produced, Georgia has assisted Florida by searching its own production and identifying the requested documents by specific Bates numbers. For example, Georgia helped Florida locate several files within Georgia's production related to monthly agriculture readings. At Florida's request, Georgia also conferred with professors at Georgia Tech regarding produced data and models and provided Florida with specific information relating to those documents and models.

B. Written Discovery Between Parties.

Although written discovery is now closed, the parties have continued to supplement their responses as necessary. With respect to the discovery Florida served on Georgia, Georgia continues to believe that its responses to Florida's interrogatories are sufficient. Georgia nonetheless responded to Florida's request for additional information and supplemented its responses to Florida's Interrogatories 12, 28, and 29 on December 7, 2015. With respect to the discovery Georgia served on Florida, Georgia continues to be concerned about the sufficiency of Florida's RFA responses, which were served on November 9, 2015. In a letter to Florida dated November 24, 2015, Georgia explained why over half of Florida's RFA responses were non-responsive or otherwise deficient. Georgia requested that Florida revise and resubmit amended, responsive answers to a number of specific RFAs by December 18, 2015. Florida supplemented its responses on December 30, 2015. Although Florida's recent supplemental responses address some of the deficiencies in Florida's initial responses, many responses are still inadequate. Georgia sent a second letter to Florida on January 8, 2016, addressing those deficiencies.

Most notably, Florida refuses to admit or deny basic facts within its knowledge, which unnecessarily prolongs and complicates discovery into even the most basic factual matters. Florida has even refused to admit or deny the truth of documented factual representations that Florida has made in the recent past. For example, when Florida sought a declaration of a federal fisheries disaster, Florida represented that "drought conditions contributed" to the oyster collapse in 2012. But now Florida refuses to admit or deny the truthfulness of that fact. (See Resp. to RFA No. 218).

Florida also refuses to admit or deny basic facts related to its own statutes, regulations, and executive orders. For example, a website maintained by Florida states that "The Florida

Statutes (Chapters 120 and 373) . . . prescribe rules for applying for a water use permit,”¹ but in Response to RFA No. 183, Florida refuses to admit or deny that those statutes “prescribe rules for applying for a water use permit.” Another request asks Florida to admit or deny that “Florida Governor Crist issued Executive Order of the Governor Number 10-99, which authorized agencies to waive or deviate from Florida ‘statutes, rules, ordinances or orders to the extent that such actions are needed to cope’ with the Deepwater Horizon oil spill”—a request that uses language from the Executive Order itself. *See* Executive Order of the Governor Number 10-99 (Apr. 30, 2010) (“I delegate to such agencies the authority to *waive* or *deviate* from such statutes, rules, ordinances or orders to the extent that such actions are needed to cope with this emergency.”) (emphasis added). Yet Florida refuses to admit this, and instead objects that the terms “authorize,” “waive,” and “deviate”—terms used in the Executive Order referenced in the request—are “vague and ambiguous.” Florida cannot avoid Georgia’s attempt to discover the facts at issue in this case by claiming the very terms used by its own Governor in an Executive Order are “vague” and “ambiguous.”

Georgia hopes that parties can resolve these issues without bringing them to the Special Master for resolution.

C. Deposition Discovery Between Parties

Georgia and Florida continue to discuss the number, timing, and coordination of depositions of both State personnel and various third parties. Florida has served 44 notices or subpoenas and Georgia has served 42 notices or subpoenas. To date, Georgia has taken 12 depositions and Florida has taken 12 depositions.

¹ Southwest Florida Water Management District website, “Water Use Permits,” <http://www.swfwmd.state.fl.us/permits/wup/>.

The parties have agreed on scheduling for most of the upcoming depositions. Georgia took 6 depositions in December, and Florida took 1 new deposition in December and also completed the deposition of Martin Kistenmacher. Although Florida originally scheduled several other depositions in December, it postponed them to February 2016. Georgia is currently scheduled to take 11 depositions in January and Florida is currently scheduled to take 9 depositions in January. In February, Georgia is currently scheduled to take 13 depositions and Florida is currently scheduled to take 9 depositions. Five depositions² remain to be scheduled, including 2 depositions of party witnesses and 4 depositions of non-party witnesses. Of the depositions that remain to be scheduled, the parties have now provided dates for all of the witnesses within their control. The remaining witnesses are third parties that Georgia and Florida are both attempting to schedule.

Additionally, on December 4, 2015, Florida served a Revised and Amended Notice of Rule 30(b)(6) Deposition of the State of Georgia requesting 16 additional topics. On December 22, 2015, Georgia served its Responses and Objections to Florida's Revised and Amended Notice of Rule 30(b)(6) Deposition of the State of Georgia. Georgia agreed to provide a witness to provide testimony related to 14 of those topics.

Georgia objected to two topics (Topics 14 and 15) related to the email accounts of three former EPD Directors, who departed EPD at various points over the past 15 years, because the requests were overbroad, not relevant, substantially burdensome, and unrelated to the merits of this case. Georgia also objected because it has already provided interrogatory responses nearly eight months ago and supplemental information by letter to Florida on the very same topics outlined in Florida's 30(b)(6) request. Indeed, in its April 24, 2015 Responses and Objections to

² This count does not include the jointly-noticed depositions of 6 federal agency officials served with *Touhy* requests, which are currently all subject to objection from the federal agencies.

Florida's Second Set of Interrogatories, Georgia explained the reasons why it no longer has possession, custody, or control over the email accounts for former Directors Reheis, Couch, and Barnes. Georgia provided supplemental information to Florida on this topic on October 7, 2015, and again on January 7, 2016, outlining the additional steps Georgia took to identify and produce available emails and other documents from the former directors. And in fact Georgia has produced more than 23,000 pages of documents and emails from these three former EPD Directors. Since Georgia first provided an interrogatory response regarding EPD Director emails in April 2015, and in the three months that have passed since Georgia provided supplemental information on this topic, Florida has not identified any way in which Georgia's interrogatory responses were deficient nor explained what additional information could be obtained through a 30(b)(6) deposition that has not already been provided.

After Georgia served its December 22, 2015 responses and objections to Florida's 30(b)(6) request, Florida responded with a letter on January 5, 2016 that demanded testimony on 28 discrete sub-topics under the umbrella of the two initial topics related to former EPD Director email accounts. All of those topics pertain to broad e-discovery or records-retention practices, and none pertains to the actual merits of Florida's suit. Among other things, those topics seek (i) testimony on Georgia's retention schedules and preservation practices dating back thirty years; (ii) the identity and location of all record centers to which any Georgia agency involved in this case has ever transferred documents; (iii) all "asset registries" maintained since 1983; and (iv) "file-naming," "location-saving," and "disk ... labeling" conventions of the former Directors. Florida's request that Georgia present a witness to testify on over two dozen overbroad e-discovery and records-retention practices is unreasonable, unnecessary, and unduly burdensome, particularly with just seven weeks left in discovery and with at least 30 more depositions scheduled on the actual merits of the case. Indeed, courts disfavor e-discovery depositions of this nature because they

distract the parties from merits issues and instead force them to spend time and resources on non-merits issues that do nothing to resolve the pending dispute. *See, e.g., Cunningham v. Std. Fire Ins. Co.*, 2008 WL 2668301, at *5 (D. Colo. Jul. 1, 2008) (denying 30(b)(6) witness on retention policies); *Martin v. Allstate Ins. Co.*, 292 F.R.D. 361, 363-64 (N.D. Tex. 2013) (same); *Freedman v. Weatherford Int’l Ltd.*, 2014 WL 4547039, at *2-3 (S.D.N.Y. Sept. 12, 2014) (denying motion to compel discovery into defendant’s search methodology); *Orillaneda v. French Culinary Institute*, 2011 WL 4375365, at *6–9 (S.D.N.Y. Sept. 19, 2011) (denying discovery into defendant’s methods for searching and maintaining documents).

If Florida’s goal is to seek information about “whether any [more emails from former EPD Directors] can be retrieved,” as it claimed in its December Status Report, Georgia has already explained to Florida that it has taken all reasonable steps to produce all subject emails in its possession, custody, or control, and that to the extent Florida can identify additional reasonable steps that Georgia has not already thought of, Georgia is willing to consider them (subject to obvious concerns about timing, burden, and relevance) without the need for a wasteful, inefficient and unnecessary 30(b)(6) deposition on these issues. Georgia reviewed and produced material from thirty-five boxes of paper documents for these directors, and also collected and produced documents from the individual who served as administrative assistant for all three directors. In addition, to the extent emails were used by these directors during their tenure, responsive email correspondence is available through the email accounts of other agreed-upon email custodians, which Georgia collected, reviewed, and produced. These efforts satisfy Georgia’s discovery obligations, and Florida is not entitled to 30(b)(6) testimony on this issue.

D. Discovery From the United States.

As the Special Master is aware, the actions of federal agencies and personnel are intimately related to key issues in this case. In an effort to obtain evidence critical to both

parties, Georgia and Florida have collectively noticed eight United States government officials with *Touhy* requests for depositions. To date, the United States has refused all requests to provide witnesses for deposition. These objections prejudice Georgia and prevent it from obtaining evidence that support its case.

Georgia has met and conferred with federal officials to discuss the agencies' objections but the United States will not make its witnesses available. Instead, the United States proposes to have the parties separately interview some (but not all) of the witnesses whose testimony has been sought, excluding entirely the United States Army Corps of Engineers. Georgia has serious concerns about the United States' proposed approach. Apart from the fact that an informal interview will not lead to sworn testimony or admissible evidence, the format of these proposed interviews is also problematic: isolated interviews where the parties are provided with different and even potentially conflicting information with no opportunity to ask follow up questions about the information provided to the other party is prejudicial, unfair, and will not advance the fact-seeking process. Moreover, the Army Corps of Engineers—which the United States refuses to make available even for informal interviews—plays a crucial and primary role in controlling the amount and timing of water flows in the ACF Basin. Indeed, it remains unclear how any remedial order from this Court could or would provide Florida relief without such an order being binding on (and enforceable against) the Corps. Georgia continues to discuss this issue with the United States and hopes that it can be resolved without bringing it to the Special Master for resolution.

As mentioned in the last status report, Georgia is preparing comments to the updated Army Corps of Engineers Water Control Manual for the ACF Basin and expects to provide them to the Army Corps, with a copy to Florida, on January 15. Florida has confirmed that it also

intends to submit comments to the updated Water Control Manual before the comment deadline of January 15, 2016. Georgia looks forward to reviewing Florida's comments, which will be important to upcoming depositions of Florida's fact witnesses and 30(b)(6) witnesses.

E. Georgia Has Met and Conferred with Other Third Parties Regarding Collection and Production of Documents.

Georgia has continued to meet and confer with third parties in an effort to obtain responsive documents without imposing unnecessary burdens, and to schedule third-party depositions as needed. A chart of the nonparty documents Georgia has received and produced to date is attached as Exhibit A. Georgia believes it has produced all documents it has received from the third parties it subpoenaed.

III. ANTICIPATED DISCOVERY

Georgia anticipates conducting the following discovery in the next month:

- Facilitating the production to Florida of any remaining documents collected in response to Florida's subpoenas duces tecum to various third-party individual and university witnesses;
- Producing to Florida additional third-party documents produced to Georgia in response to its subpoenas;
- Reviewing documents produced by third parties;
- Continuing to confer with third parties about scheduling depositions;
- Taking and defending depositions.
- Preparation of expert reports.

IV. UNRESOLVED DISPUTES AND OTHER CONCERNS

A. Florida Refuses to Produce Adam Putnam for Deposition

As explained above, Georgia submitted a notice of deposition for FDACS Commissioner Adam Putnam on October 7, 2015. As Commissioner, Mr. Putnam has responsibility for supervision and management responsibility for Florida's fisheries and also plays a role in

developing and implementing Florida’s state water policy. As Mr. Putnam himself states on his official web page at FDACS, his “priorities” as Commissioner “include . . . expanding access to Florida’s abundance of fresh . . . seafood” and “protecting the quantity and quality of the state’s water supply.”³ Moreover, Mr. Putnam supervises the FDACS Division of Aquaculture, which according to its official webpage is “responsible for. . . [d]eveloping and enforcing regulations governing . . . [c]ommercial aquaculture and shellfish (clams, oysters and mussels) harvesting and processing.”⁴ Thus, Mr. Putnam plays a critical role in two of the key issues presented in this case: Florida’s water supply and the causes of the 2012 oyster fishery failure. For this reason alone, Georgia is entitled to take his deposition. To accommodate Florida, Georgia has agreed to limit that deposition to four hours.

Mr. Putnam has made public statements that underscore the need for his testimony specifically. For example, news reports indicate that at a symposium in 2012, Mr. Putnam stated that “[i]f the federal government does not guarantee the state of Florida adequate flows of water that we are entitled to, it will continue to devastate jobs, families and communities.”⁵ In addition, Mr. Putnam stated in October 2012 that it was “imperative that the Corps of Engineers release more water” because Florida had “data that demonstrates that . . . the flow has never been worse than it is today” and that such low flows were “having an enormous impact on oyster populations.” Both Georgia and the Supreme Court are entitled to hear Mr. Putnam’s basis for his statement that the “flow has never been worse,” what Mr. Putnam believes the role of the

³ <http://www.freshfromflorida.com/About/Meet-Commissioner-Putnam>.

⁴ <http://www.freshfromflorida.com/Divisions-Offices/Aquaculture>.

⁵ Lee Gordon, *Where Have All the Oysters Gone?*, 850 Business Mag. (Dec.-Jan. 2012).

Army Corps to be with regards to guaranteeing flows, and why he believes those flows have had an “impact on oyster populations” and on “jobs, families, and communities.”

Mr. Putnam has also played a critical role in a centerpiece of Florida’s claimed harm: Florida’s decision to seek a declaration of an oyster fishery failure in the Apalachicola Bay in September 2012. In his capacity as Commissioner, Mr. Putnam wrote the key letter to Governor Scott urging him to seek federal relief (copy attached). In that letter Mr. Putnam principally attributed the oyster collapse to a “prolonged drought that many other areas of the state are facing,” and he attached a report prepared by his agency that identified “harvesting pressure” by Florida oyster farmers as contributing to the collapse, including “continuous harvesting . . . concentrated and intensive harvesting by the majority of the fishing fleet, and the excessive harvesting of sub-legal oysters.” Now that Florida in its complaint is blaming the oyster collapse entirely on upstream Georgia water consumption, *see* Compl. ¶ 54, Georgia is entitled to ask the state official in Florida who initiated the process of seeking a fishery failure declaration why Florida’s position has changed and why his letter to Governor Scott said nothing about upstream Georgia water consumption. In fact, Florida specifically alleges in its Complaint that it was Georgia’s conduct that “led Florida Governor Rick Scott to seek a declaration of a commercial fisheries failure for the oyster industry.” *See id.* ¶ 56. It was Mr. Putnam who wrote the letter that Governor Scott relied on, and now Florida is saying that neither Georgia nor this Court is entitled to hear from Mr. Putnam about what led him to draft that letter and submit it to the Governor or his first-hand knowledge of the assertions made in his letter.

Florida objects to Georgia’s request on the ground that Mr. Putnam is a statewide elected official and thus should be insulated from deposition, and that Georgia will be able to elicit any relevant facts that Mr. Putnam knows from other Florida witnesses. Florida’s position is

incorrect both as a matter of law and of fact. First, depositions of government officials are appropriate where the official has first-hand knowledge related to the claim being litigated and where it is shown that other persons cannot provide the necessary information. *See Bagley v. Blagojevich*, 486 F. Supp. 2d 786, 789 (C.D. Ill. 2007) (allowing deposition of Governor Blagojevich when “Plaintiffs allege that the Governor was either the ultimate decision maker or at least personally involved in the decision” at issue in the case); *United States v. Sensient Colors, Inc.*, 649 F. Supp. 2d 309, 324 (D.N.J. 2009) (allowing the deposition of EPA Regional Administrator when she possessed the ultimate decision-making authority); *Am. Broad. Companies, Inc. v. U.S. Info. Agency*, 599 F. Supp. 765, 769 (D.D.C. 1984) (permitting deposition of head of a federal agency about documents he created because information could not be obtained from others).

Second, other Florida witnesses have been unable to testify about the drafting of Mr. Putnam’s letter or the assertions contained therein. These include: Kal Knickerbocker, FDACS Division of Aquaculture Director, Knickerbocker Dep. at 244:10-13 (“[Y]ou were not consulted by Commissioner Putnam with respect to any of the information he has included in his letter?” “No.”); Brett Cyphers, Executive Director of the Northwest Florida Water Management Division (NFWFMD), Cyphers Dep. at 81:14-18 (“You weren't consulted by Commissioner Putnam or anybody to provide input for this letter?” “The district may have, but I don't believe I was.”); Douglas Barr, former NFWFMD director, Barr Dep. at 386:12-13 (“But this [letter], no, I don't recall seeing this.”); Lee Edmiston, Reserve Manager at the Florida Department of Environmental Protection, Edmiston Dep. at 158:23-159:2 (“Did you have any input into the content of this [letter]?” “From Putnam to Scott, Rick Scott?...No, I did not.”); and John

Steverson, Secretary of Florida Department of Environmental Protection, Steverson Dep. at 37:3-10 (“Did you have any input into...that letter to Governor Scott?” “No.”).

Third, Florida has pointed Georgia to four additional witnesses that Georgia could depose in lieu of Mr. Putnam. But it hardly serves interests of judicial economy or efficiency to substitute four separate depositions for a single deposition, particularly when the deposition in question would be of the very individual who authored the document in question. No other witness, moreover, will be able to testify as to Mr. Putnam’s state of mind and *his* basis for the statement *he* made.

Georgia must be able to question Mr. Putnam about the bases for his request to the Governor for a fishery disaster declaration, which cites reasons other than Georgia’s water consumption as having caused the Florida’s oyster collapse. He is directly connected to Florida’s allegation that Georgia’s upstream consumption “precipitated a collapse of Florida’s oyster fishery.” Rather than seek the deposition of Governor Scott—the chief executive of Florida, and the elected official who actually petitioned the U.S. Department of Commerce for a fishery disaster declaration—Georgia has focused on this lower-level official who has personal knowledge of the same information.

B. Florida Has Not Adequately Prepared Its 30(b)(6) Witnesses

Georgia has now deposed three witnesses who were identified as Florida’s 30(b)(6) designees. These depositions are critical to narrowing the issues in dispute and for Georgia to understand the factual bases (if any) of Florida’s claimed injury. But Florida’s witnesses were unprepared to provide testimony on their respective topics.

For example, Gregg Munson—who was designated to discuss Florida’s allegations related to the ACF compact negotiations—was not involved in those negotiations and never spoke to a single person personally involved in those negotiations. *Deposition Transcript of Greg Munson, 30(b)(6)*

designee, 12:19–13:5. As a result, Mr. Munson did not know that the negotiations had continued through most of 2003. *Id.* at 91:23–93:8. He was unaware that the governors reached a framework to continue discussions in July 2003. *Id.* at 105:25–106:4. He did not even know the positions of the parties who called off the negotiations or why they were called off. *Id.* at 116:23–117:3.

In addition, Florida put forth John Steverson as a representative to testify about Topic 25: “Florida’s effort to mitigate any alleged harm caused by Georgia’s Water Use.” But Mr. Steverson was unable to answer the most basic questions about Florida’s efforts to mitigate the harm to the Bay that Florida has alleged in this case:

Q. With respect to the various mitigation efforts that you’ve identified detailed in Exhibit 2, has any analysis been done to determine how much additional water has been, you know, made available -- fresh water made available in the Apalachicola for the bay?

A. I’m sure someone has done that analysis. I don’t know that I have that information available to me.

Deposition Transcript of John Steverson, 30(b)(6) Designee, at 16:20-17:3.

Florida counsel acknowledged that Mr. Steverson was not prepared to testify on behalf of Florida and agreed to provide an additional witness or witnesses to speak to the numerous topics as to which Mr. Steverson was unprepared to testify. Florida has not yet identified who will provide testimony regarding Topic 25 and has not any provided date when that witness will be available. Georgia continues to discuss this issue with Florida and hopes that it can be resolved without bringing it to the Special Master for resolution.

By contrast, Brett Cyphers, Florida’s designee for Topics, 1, 2, 3, 4(a), 7, 9, and 28(a)-(f), testified as a 30(b)(6) witness by reading into the record portions of an attorney-authored 35-page single-spaced script. Counsel for Georgia asked questions about the source of the script,

but Mr. Cyphers could not describe how the script was compiled, what sources were used to compile it, or who was involved in developing the information. *Deposition Transcript of Brett Cyphers, 30(b)(6) designee*, at 13:16–13:22; *id.* at 56:23–57:13. Mr. Cyphers had no knowledge of whether the attorney-authored script was accurate and truthful apart from his attorney’s assurances that the facts in that script were accurate. Because Mr. Cyphers could not provide sufficient answers about the source of the script (let alone answers to Georgia’s substantive questions) during the deposition, Georgia has requested discovery into to the creation of the script. But in a letter dated January 5, 2016, Florida refused to provide that information.

To the extent that Florida objects to discovery on the script on the basis of privilege or work product protection, it waived those protections by providing the script—which itself bore a header indicating that it was originally intended to be attorney-client privileged and work product—to Mr. Cyphers for purposes of testifying directly from that document. The United States Supreme Court explained that when “counsel attempts to make a testimonial use of [work product] materials the normal rules of evidence come into play with respect to cross-examination and production of documents.” *United States v. Nobles*, 422 U.S. 225, 239 n. 14 (1975); *see also In re Neurontin Antitrust Litigation*, 2011 WL 253434, at *17 (D.N.J. Jan. 25, 2011) (Party cannot “place the entire corpus of corporate knowledge within the parameters of its work product, and parrot work product selections as the bases for [its testimony] while simultaneously expect work product protection to shield inquiry into those selections.”), *aff’d* 2011 WL 2357793 (D.N.J. June 9, 2011). Indeed, the attorney-author of the script has already admitted on the record that the document is not privileged. Georgia continues to discuss this issue with Florida and hopes that it can be resolved without bringing it to the Special Master for resolution.

V. MEDIATION

The parties have come to an agreement on a mediator and have confirmed a mediation date. The parties are in the process of working with the mediator on the procedures for mediation. Georgia will update the Special Master as necessary as the mediation progresses, including in any way that the Special Master thinks most appropriate to preserve the confidentiality of the mediation process.

Dated: January 8, 2016

/s/ Craig S. Primis
Craig S. Primis, P.C.
K. Winn Allen
KIRKLAND & ELLIS LLP
655 Fifteenth St. NW
Washington, DC 20005
Tel.: (202) 879-5000
Fax: (202) 879-5200
cprimis@kirkland.com

EXHIBIT A

**DOCUMENTS RECEIVED FROM THIRD PARTIES IN RESPONSE TO GEORGIA'S
SUBPOENAS AND PRODUCED TO FLORIDA**

Third Party	Bates Range	Date Produced
Alligator Point Water Resources District	APWRD_00001 to APWRD_01177	July 1, 2015
Apalachicola Bay Oyster Dealers Association	ABODA_0001 to ABODA_0081	Apr. 30, 2015
Apalachicola Chamber of Commerce	ACOC_0001 to ACOC_0195	Apr. 30, 2015
Apalachicola Riverkeeper	AR_0001 to AR_0036	Apr. 30, 2015
	AR_0000037 to AR_0116946	July 27, 2015
	AR_0116947 to AR_0221940	Sept. 28, 2015
Bay County	BAY_CO.(FL)_00001 to BAY_CO.(FL)_00009	July 1, 2015
Calhoun County	CALHOUN_CO_0001 to CALHOUN_CO_0049	Apr. 30, 2015
City of Apalachicola	City_of_Apalachicola(FL)_0001 to City_of_Apalachicola(FL)_0617	Apr. 30, 2015
City of Blountstown	BLOUNTSTOWN(FL)_00001 to BLOUNTSTOWN(FL)_01557	May 29, 2015
City of Bristol	City_of_Bristol(FL)_0000001 to City_of_Bristol(FL)_0000998	July 27, 2015
City of Carrabelle	City_of_Carrabelle(FL)_0001 to City_of_Carrabelle(FL)_0020	Apr. 30, 2015
	City_of_Carrabelle(FL)_0021 to City_of_Carrabelle(FL)_1595	July 1, 2015
City of Chattahoochee	City_of_Chattahoochee(FL)_00001 to City_of_Chattahoochee(FL)_00136	May 29, 2015
City of Cottondale	COTTONDALE(FL)_00001 to COTTONDALE(FL)_00227	May 29, 2015
City of Marianna	City_of_Marianna(FL)_00001 to City_of_Marianna(FL)_00217	July 1, 2015
City of Port St. Joe	Port_St_Joe_0000001 to Port_St_Joe_0000486	July 27, 2015
City of Wewahitchka	Wewahitchka(FL)_0000001 to Wewahitchka(FL)_0003099	July 27, 2015
Florida State University	FL_State_Univ_00001 to FL_State_Univ_00050	May 29, 2015
	FL_State_Univ_00051 to FL_State_Univ_01377	Sept. 28, 2015
Florida Sea Grant	FL_SEA-GRANT_00001 to FL_SEA-GRANT_37355	Apr. 30, 2015
	FL_SEA-GRANT_37356 to FL_SEA-GRANT_56648	May 29, 2015
	FL_SEA-GRANT_56649 to FL_SEA-GRANT_56762	Sept. 28, 2015
Franklin County	FRANKLIN_CO_0001 to FRANKLIN_CO_5512	Apr. 30, 2015
Franklin Co. Seafood Workers Association	FCSWA_00001 to FCSWA_00005	May 29, 2015
	FCSWA_00006 to FCSWA_00017	July 1, 2015

Third Party	Bates Range	Date Produced
Gadsden County	Gadsden_Co_0001 to Gadsden_Co_0015	Apr. 30, 2015
Gulf County	Gulf_County(FL)_00001 to Gulf_County(FL)_00194	Nov. 6, 2015
Jackson County	JACKSON_CO_0001 to JACKSON_CO_0062	Apr. 30, 2015
Jacob City	JACOB_CITY(FL)_00001 to JACOB_CITY(FL)_00309	July 1, 2015
Liberty County	Liberty_Co_0001 to Liberty_Co_0804	Apr. 30, 2015
Lighthouse Utility Co.	Lighthouse_Util_Co.(FL)_00001 to Lighthouse_Util_Co.(FL)_00581	July 1, 2015
Town of Alford	Town_of_Alford(FL)_00001 to Town_of_Alford(FL)_00480	May 29, 2015
Town of Altha	TOWN_OF_ALTHA(FL)_00001 to TOWN_OF_ALTHA(FL)_00163	July 1, 2015
Town of Greenwood	Town_of_Greenwood(FL)_0000001 to Town_of_Greenwood(FL)_0000019	July 27, 2015
Town of Malone	Town_of_Malone(FL)_00001 to Town_of_Malone(FL)_00181	May 29, 2015
	Town_of_Malone(FL)_00182 to Town_of_Malone(FL)_00284	July 27, 2015
Town of Sneads	SNEADS_0001 to SNEADS_0802	Apr. 30, 2015
St. James Island Utility Company Water Treatment Plant	SJIUC_0001 to SJIUC_0153	Apr. 30, 2015
University of Florida	UFL_0001 to UFL_0858	Apr 30, 2015
	UFL_00859 to UFL_01592	May 29, 2015
	UFL_00001593 to UFL_00846570	Sept. 22, 2015
	UFL_00846571 to UFL_01432034	Sept. 28, 2015
	UFL_01432035 to UFL_01432069	Nov. 6, 2015
	UFL_01432070 to UFL_01432134	Nov. 30, 2015
Washington County	Washington_Co.(FL)_00001 to Washington_Co.(FL)_00113	May 29, 2015
Water Management Services, Inc.	Water_Mgmt_Servs(FL)_0000001 to Water_Mgmt_Servs(FL)_0001071	July 27, 2015
	Water_Mgmt_Servs(FL)_0001072 to Water_Mgmt_Servs(FL)_0002133	Sept. 28, 2015

EXHIBIT B**GEORGIA'S PRODUCTIONS**

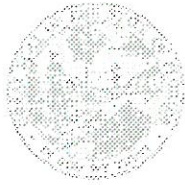
Production Number	Bates Range	Production Type	Date Produced
First	GA00000001 to GA00000008	7 Models (4.4 GB), 1 Database	Feb. 6, 2015
Second	GA00000009 to GA00013500	Electronically Stored Information	Feb. 10, 2015
Third	GA00013501 to GA00041516	Electronically Stored Information, 2 Databases	Mar. 6, 2015
Fourth	GA00041517	1 Database	Mar. 27, 2015
Fifth	GA00041518 to GA00041989	Electronically Stored Information	Apr. 2, 2015
Sixth	GA00041990 to GA00208007	9 Models (78 GB), Electronically Stored Information and Paper Records	Apr. 3, 2015
Seventh	GA00208008 to GA00208010	3 Models (4.3 GB)	Apr. 30, 2015
Eighth	GA00208011 to GA00338078	Electronically Stored Information and Paper Records	May 1, 2015
Ninth	GA00338079	1 Model (2.5 GB)	May 29, 2015
Tenth	GA00338080 to GA00596884	Electronically Stored Information and Paper Records	June 4, 2015
Eleventh	GA00596885 to GA00596886	1 Database & 1 Database Report	June 15, 2015
Twelfth	GA00596887 to GA00646491	Electronically Stored Information and Paper Records	June 22, 2015
Thirteenth	GA00646492 to GA00865658	Electronically Stored Information and Paper Records	July 7, 2015
Fourteenth	GA00865659 to GA00865664	6 Models (149 GB)	August 5, 2015
Fifteenth	GA00865665 to GA01382872	Electronically Stored Information and Paper Records	August 5, 2015
Sixteenth	GA01382873 to GA01827401	Electronically Stored Information and Paper Records	Aug. 26, 2015
Seventeenth	GA01827402 to GA02052890	Electronically Stored Information and Paper Records	Sept. 9, 2015
Eighteenth	GA02052891 to GA02126195	Electronically Stored Information and Paper Records	Oct. 1, 2015
Nineteenth	GA02126196 to GA02316611	Electronically Stored Information and Paper Records	Nov. 10, 2015
Twentieth	GA02316612 to GA02323632	Electronically Stored Information and Paper Records	Nov. 10, 2015

Production Number	Bates Range	Production Type	Date Produced
Twenty First	GA02323633 to GA02337223	Electronically Stored Information and Paper Records	Nov. 24, 2015
Twenty Second	GA02237224 to GA02337506	Electronically Stored Information and Paper Records	Dec. 4, 2015
Twenty Third	GA02337507 to GA02350116	Electronically Stored Information and Paper Records	Dec. 14, 2015
Twenty Fourth	GA02350117 to GA02416732	Electronically Stored Information and Paper Records	Dec. 23, 2015

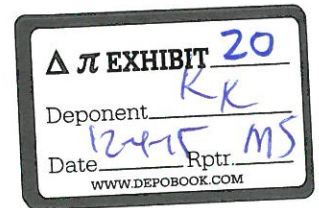
CERTIFICATE OF SERVICE

This is to certify that the JANUARY 8, 2016 STATUS REPORT OF THE STATE OF GEORGIA has been served on this 8th day of January 2016, in the manner specified below:

<p><u>For State of Florida</u></p> <p><u>By U.S. Mail and Email</u></p> <p>Allen Winsor Solicitor General Counsel of Record Office of Florida Attorney General The Capital, PL-01 Tallahassee, FL 32399 T: 850-414-3300 allen.winsor@myfloridalegal.com</p>	<p><u>For United States of America</u></p> <p><u>By U.S. Mail and Email</u></p> <p>Donald J. Verrilli Solicitor General Counsel of Record Department of Justice 950 Pennsylvania Avenue, N.W. Washington, DC 20530 T: 202-514-7717 supremectbriefs@usdoj.gov</p>
<p><u>By Email Only</u></p> <p>Donald G. Blankenau Jonathan A. Glogau Christopher M. Kise Matthew Z. Leopold Osvaldo Vazquez Thomas R. Wilmoth floridawaterteam@foley.com</p>	<p><u>By Email Only</u></p> <p>Michael T. Gray michael.gray2@usdoj.gov</p> <p>James DuBois james.dubois@usdoj.gov</p>
<p><u>For State of Georgia</u></p> <p><u>By Email Only</u></p> <p>Samuel S. Olens Nels Peterson Britt Grant Sarah H. Warren Seth P. Waxman Craig S. Primis K. Winn Allen georgiawaterteam@kirkland.com</p>	<p><i>/s/ Craig S. Primis</i></p> <hr/> <p>Craig S. Primis <i>Counsel of Record</i> KIRKLAND & ELLIS LLP 655 Fifteenth Street, NW Washington, DC 20005 T: 202-879-5000 craig.primis@kirkland.com</p>



RICK SCOTT
GOVERNOR



September 6, 2012

Ms. Rebecca Blank
Acting Secretary
U.S. Department of Commerce
1401 Constitution Avenue, NW
Washington, D.C. 20230

Dear Secretary Blank:

On behalf of Florida's oyster industry, I respectfully request that you declare a commercial fishery failure due to a fishery resource disaster for Florida's oyster harvesting areas in the Gulf of Mexico, particularly those in Apalachicola Bay, pursuant to Section 312(a) of the Magnuson-Stevens Fishery Management and Conservation Act.

The State of Florida has experienced an unprecedented decline in the abundance of oysters within our coastal estuaries, a direct consequence of which has been a significant loss of income to commercial oyster fishermen, oyster processors and rural coastal communities. Recent oyster resource assessments indicate that the outlook for the 2012/2013 harvesting season is "poor" and unlikely to sustain commercial harvesting levels. I enclose a letter and report from Florida's Department of Agriculture and Consumer Services (FDACS) assessing the current impacts. The FDACS report estimates the dockside value of oyster landed in Franklin County at \$6.64 million in 2011, which translates to a larger and significant overall economic impact to the affected communities. After conferring with county leadership, Franklin County estimates the employment impact to affect 2,500 jobs, including commercial oyster fishermen, processors and related coastal economies.

According to the report, observations and sampling of oyster populations on the primary oyster producing reefs in Apalachicola Bay during July 2012 indicated that oyster populations were in poor condition. It is believed that a combination of factors has led to the recent decline in oyster populations.

The Florida Panhandle and Apalachicola Bay, as the drainage basin of the Apalachicola, Flint, and Chattahoochee Rivers, have experienced drought conditions for several years resulting in reduced freshwater input into Apalachicola Bay. This absence

THE CAPITOL
TALLAHASSEE, FLORIDA 32399 • (850) 488-2272 • FAX (850) 922-4292

FL-ACF-02234662

Ms. Rebecca Blank
Page Two
September 6, 2012

of freshwater contributes to higher salinity levels adversely affecting oyster populations and contributing to mass natural mortality events and a dramatic increase in oyster predation.

Harvesting pressures and practices were altered to increase fishing effort, as measured in reported trips, due to the closure of oyster harvesting in contiguous states during 2010. This led to overharvesting of illegal and sub-legal oysters further damaging an already stressed population. Other undetermined causes may also have been involved.

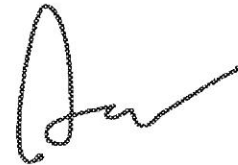
Disaster relief funds authorized by the Magnuson-Stevens Act are needed to: 1) further assess the primary and secondary causes of the oyster decline; 2) determine the feasibility of actions to remediate or restore the affected resources; 3) begin actions to prevent and restore affected resources; and 4) provide economic assistance to fishing communities and small businesses, including oyster fishermen affected by the disaster.

The State of Florida is prepared to provide the information necessary for you to properly assess this situation. On behalf of Florida's oyster community, I thank you for your prompt consideration of this urgent request.

Sincerely,



Rick Scott
Governor





FLORIDA DEPARTMENT OF AGRICULTURE AND CONSUMER SERVICES
COMMISSIONER ADAM H. PUTNAM
THE CAPITOL

September 5, 2012

The Honorable Rick Scott
Governor
State of Florida
The Capitol, Plaza Level 05
Tallahassee, Florida 32399

Dear Governor Scott:

I am writing today to advise you of a situation that is quickly becoming a crisis for Florida's coastal communities who rely on a vibrant and healthy oyster population for economic viability. The oyster resources in the state, particularly those in Apalachicola Bay, have been significantly impacted by the prolonged drought that many areas of the state are facing. The drought conditions in the Bay have caused the oyster resources to decrease to a level that will no longer sustain Florida's commercial oyster industry. This situation has been exacerbated by the low level of fresh water coming down the Apalachicola River into the Bay.

As you know, oysters require a delicate balance of both fresh and salt water. If salinity levels in and around oyster reefs get too high, the water is hospitable to marine organisms that prey on oysters such as oyster drills, stone crabs and conchs. In addition, high salinity creates unfavorable conditions for juvenile oyster growth. First with Tropical Storm Debby and followed shortly thereafter by Tropical Storm Isaac, the already scarce resource was further impacted. A recent assessment of the oyster resources in the Bay conducted by the Florida Department of Agriculture and Consumer Service (FDACS) concluded that current oyster resource levels have not been this low since immediately after Hurricane Elena in 1985.

In addition to Apalachicola, we have already begun to hear from oyster harvesters in Wakulla, Dixie and Levy counties that they are also seeing high oyster mortality rates due to the drought. These areas have been closed seasonally to oyster harvesting through the summer and only opened on September 1, 2012. FDACS will conduct assessments on those areas over the next two weeks, however given the situation in Apalachicola Bay, it is likely these areas will also not support a sustained commercial harvest.



Fresh
Florida

1-800-HELPFLA

(850) 486-3022

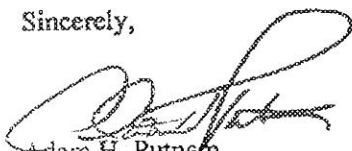
www.FreshFromFlorida.com

Governor Rick Scott
September 5, 2012
Page Two

On behalf of Florida's oyster harvesters and processors, I respectfully request that you ask United States Department of Commerce Acting Secretary Rebecca Blank to declare a federal fishery disaster for Florida's oyster harvesting areas in the Gulf. I believe the current conditions meet the requirements established in Section 312(a) of the Magnuson-Stevens Fishery Conservation and Management Act and Section 308(b) of the Interjurisdictional Fisheries Act and therefore warrant this request.

To assist in your consideration of this request, I am enclosing the Apalachicola Bay Oyster Resource Assessment Report. Thank you in advance for your support of Florida's commercial oyster industry. Should you need additional information on this situation, please do not hesitate to contact me.

Sincerely,



Adam H. Putnam
Commissioner of Agriculture

Enclosure

Oyster Resource Assessment Report
Apalachicola Bay
August 2012
Department of Agriculture and Consumer Services
Division of Aquaculture

Executive Summary

Observations and sampling of oyster populations on the primary oyster producing reefs in Apalachicola Bay during July 2012 indicated that oyster populations were depleted over most of the reef areas sampled and that surviving oyster populations are severely stressed. Staff of the Department of Agriculture and Consumer Services' Division of Aquaculture conducted assessments of oyster populations after preliminary reconnaissance following the passage of Tropical Storm Debby indicated that oyster populations on Cat Point Bar and East Hole Bar were in poor condition. More detailed sampling and analyses confirmed the condition of oyster resources and suggested that the poor condition was the result of combination of environmental factors and fishery practices. Analyses and observations further suggested that Tropical Storm Debby was only a minor contributing factor to the overall poor condition of oyster resources and confirmed evidence that prolonged drought conditions, continuing low river discharge rates and intensive harvesting were adversely affecting oyster populations in Apalachicola Bay.

This report provides interpretative analyses of sampling data, fisheries data, environmental conditions, fishery practices and other factors to describe the current status of oyster resources and predict oyster fishery trends for the 2012/13 Winter Harvesting Season in Apalachicola Bay. Analyses and observations indicate that a combination of factors have resulted in a cascading effect that has contributed to the depletion of oyster populations and may lead to longer-term debilitation of oyster resources and oyster reef habitats.

Introduction

The Florida Department of Agriculture and Consumer Services (DACS) shares responsibility for managing oyster resources in Apalachicola Bay with the Florida Fish and Wildlife Conservation Commission (FWC); more specifically, the Division of Aquaculture manages oysters from both resource development and public health protection perspectives. This report summarizes information related to oyster resource compiled by the Division of Aquaculture from 2009 through August 2012.

Oyster Fisheries Statistics

Since 1980, reported landings of oysters in Florida ranged from about 1 to 6.5 million pounds of meats: highest landings were reported in the early 1980s, around 6.5 million pounds. Apalachicola Bay accounts for about 90% of Florida's landings and about 9% of the landings from the Gulf of Mexico (2000-2008 average). Reported oyster landings from Apalachicola Bay for 2011 were approximately 2.4 million pounds of meat, representing a slight increase in landings from 2010 (Table 1).

In 2011, oystermen in Franklin County reported landings of 2,380,810 pounds of meats from 39,176 trips. Landings for Apalachicola Bay are higher than reported for Franklin County, because oystermen in neighboring counties may report landings from Apalachicola Bay in those counties.

Table 1. Oyster Landings in Apalachicola Bay, Florida

Year	Pounds (Meats)	Number of Trips Reported	AB Oyster Harvesting Licenses	Bags/Trip
2000	2,327,402	25,550	958	13.9
2001	2,333,968	25,261	1,135	14.1
2002	1,725,776	20,294	914	13.0
2003	1,449,890	18,467	759	12.0
2004	1,502,056	17,692	719	12.9
2005	1,260,996	12,663	714	15.2
2006	2,127,049	22,644	916	14.3
2007	2,645,359	29,104	1,142	13.9
2008	2,238,482	27,603	1,168	12.3
2009	2,695,701	39,942	1,433	10.2
2010	1,938,059	32,330	1,909	9.1
2011	2,380,810	39,176	1,799	9.3
2012			1,687	

Landings per trip remained relatively stable during 2010 and 2011, ranging from 9.1 to 9.3 bags per trip. Landings per trip continued to trend downward from about 15 bags per trip in 2005 to about 9.3 bags per trip in 2011. Oyster landings and bags per trip do not show a direct correlation with the number of ABOHL sold; there were 1,799 ABHOL sold in 2011 and 1,687 sold in 2012. The dockside value of oyster landed in Franklin County was estimated at \$6.64 million in 2011.

Oyster landings appear to be correlated with three primary variables; resource availability, fishing effort, and market demand. Fishing effort has increased while market demand has been highly variable due to economic instability, concerns associated with the Deep Water Horizon (DWH) oil spill incident in 2010, and inconsistent supplies from other Gulf states.

Oyster Resource Assessments

The Division has conducted oyster resource surveys on the principle oyster-producing reefs in Apalachicola Bay since 1982. This information is used by resource managers to reliably predict trends in oyster production; to monitor oyster population dynamics, including recruitment, growth, natural mortality, standing stocks; and to determine the impacts of climatic events such as hurricanes, floods, and droughts on oyster resources. Sampling oyster populations allows resource managers to compare the relative condition of standing stocks over time using a defined sampling protocol. The Standard Oyster Resource Management Protocol (SORMP) provides a

calculation to estimate production based on the density of legal size oysters collected during a defined sampling interval. Production estimates exceeding 400 bags of oysters per acre is applied as an indicator of healthy oyster reefs capable of sustaining commercial harvesting.

The Division of Aquaculture conducted oyster resource assessments on the commercially important oyster reefs in Apalachicola Bay during July 2012. Commercially important reefs included Cat Point Bar, East Hole Bar and the St. Vincent Bar and Dry Bar reef complex. Oyster resource assessments were also conducted on three recently rehabilitated reefs, and on shallow and intertidal reefs in St. Vincent Sound.

Production estimates for July 2012 from Cat Point Bar (287 bags/acre) and East Hole Bar (294 bags/acre) were the lowest production estimates reported in the past twenty years prior to the opening of the Winter Harvesting Season. Similarly, production estimates from St. Vincent Bar and Dry Bar (bags per acre) demonstrated depressed production estimates. Estimated oyster population parameters for Cat Point Bar, East Hole Bar and St. Vincent / Dry Bar are below levels generally observed on these reefs prior to opening the Winter Harvesting Season, and suggest that stocks are not sufficiently abundant at this time to support commercial harvesting throughout the Winter Harvesting Season. Factors affecting estimated production parameters on individual reef complexes are discussed later in this report.

Cat Point Bar and East Hole Bar have historically been the primary producing reefs in Apalachicola Bay. These reefs form a contiguous reef system (except for the Intracoastal Waterway) that extends north to south across St. George Sound and separates the sound from Apalachicola Bay. Over the past twenty years, landings from these reefs have been critical to supporting the oyster fishery in the region.

Oyster density and estimated production showed marked declines on Cat Point Bar when compared to 2011. Estimated production declined from 417 bags per acre in August 2011 to 287 bags per acre in July 2012 (Table 2). Oyster densities decreased substantially from 430 to 64 oysters per square meter over the same sampling interval (Table 2). The decrease in oyster density reflects poor recruitment, as well as severely reduced number of oysters in the juvenile size classes, and is indicative of the degraded quality of reef substrate and structure.

Cat Point and East Hole Bar have been subject to a combination of factors that have adversely affected oyster populations, oyster reef habitat, and the oyster fishery. Oyster populations over much of the reef area are depleted and the quality of the substrate is degraded to a point where spat settlement and recruitment have been disrupted. Stress associated with prolonged high salinity, high natural mortality and predation, and intensive fishing effort have markedly reduced standing stocks of juvenile, sub adult and adult oysters.

The Dry Bar and St. Vincent Bar complex is a large contiguous reef system in western Apalachicola Bay. This reef complex provides a substantial portion of the Bay's landings during normal years, but fishing pressure was sporadic during 2011 and 2012. The estimated production for Dry Bar-St. Vincent (Table 2) indicated a substantial reduction from 323 bags per acre in August 2011 to 215 bags per acre in July 2012. Samples were collected from the Little Gully area on Dry Bar, because no live oysters were collected on St. Vincent Bar. St. Vincent Bar, extending from Dry Bar southward was considered to be depleted of marketable oysters. The oyster population on St. Vincent Bar was likely decimated by stress associated with high

salinity, disease and predation. Fishing pressure has declined as a result of reduced standing stocks of market-size oysters over the entire reef complex over the past two years. The current condition of oyster resources on Dry Bar is not expected to be at levels that will sustain commercial harvesting through the 2012/13 Winter Harvesting Season.

Estimated production parameters for the reef complexes in the western portion of the Bay and the "Miles" indicate that standing stocks of market size oysters are at various levels. Standing stocks on some reefs will support commercial harvesting, while other reefs show signs of severe stress and depletion. Oyster reefs, including North Spur, Green Point and Cabbage Lumps Plant Sites are in moderately good condition, with standing stocks and production at levels that will support limited commercial harvesting. These plant sites have been planted with processed oyster shell within the last three years, and the substrate remains in good condition; size frequency distributions are typical of healthy oyster populations. However, these reefs are small and overall production will be limited. Also, oysters on these reefs will likely be subject to intense predation from rock snails, while salinity levels remain high. Oyster populations on shallow and intertidal reefs in the 'Miles' (Spacey's Flats, Eleven Mile Bar, Picolene Bar) are also severely stressed, showing signs of intense predation and natural mortality. Bars in northwestern Apalachicola Bay and eastern St. Vincent Sound, including Green Point, North Spur and Cabbage Lumps are more strongly influenced by river flows than bars located further away from the river mouth. Prevailing flows and circulation patterns move plumes of freshwater westward from the river over these reefs before they are dispersed throughout the Bay and St. Vincent Sound.

The Standard Oyster Resource Management Protocol

Continuous monitoring and data analyses have allowed resource managers to develop a scale using defined sampling protocol to determine the relative condition of oyster resources based on estimated production parameters. The Standard Oyster Resource Management Protocol (SORMP) provides that estimated production exceeding 400 bags of oysters per acre is applied as an indicator of healthy oyster reefs capable of sustaining commercial harvesting. Accordingly, oyster populations are 1) capable of supporting limited commercial harvesting when stocks exceed 200 bags/acre, 2) below levels necessary to support commercial harvesting when stocks fall below 200 bags/acre, and 3) considered depleted when marketable stocks are below 100 bags/acre. Generally, production from Cat Point Bar has been the most accurate indicator of oyster production in Apalachicola Bay, but East Hole Bar and St. Vincent Bar are also reliable indicators of the condition of oyster resources throughout the Bay. This scale forms the basis for the Standard Oyster Resource Management Protocol provided in Subsection 68B-27.017, Florida Administrative Code, which has been used as the criteria for setting the number of harvesting days in the Winter Harvesting Season in Apalachicola Bay.

Depletion of Oyster Resources

Standing Stocks and Commercial Production Estimates

Size frequency distributions for oyster standing stocks are strong indicators of the health of oyster populations and are useful for predicting fishery trends. Size distributions among oyster populations are used to evaluate recruitment to the population, recruitment of juveniles to market size, growth, survival and potential production. Accordingly, size frequency distributions can be

used to evaluate oyster depletion events. Current analyses of size frequency distributions and oyster standing stocks indicate that oyster populations on the major producing reefs in Apalachicola Bay are experiencing an on-going depletion event.

Oyster populations can be depleted from a number of factors; including climatic conditions, water quality, drought and flood events, catastrophic storms and hurricanes, natural mortality from diseases and predation, and fisheries. Most of the time, depletions occur because of a combination of these factors (multiple stressors).

Data analyses and observations on the major reef complexes showed substantial losses of oyster populations over the past two years, with severe declines in oyster densities, standing stocks and production estimates. Declining populations can be attributed to less than optimal environmental conditions (prolonged drought, reduced river discharge rates, high salinity), storm events (Tropical Storm Debby), and increased predation and natural mortality, weak recruitment, and extensive harvesting on the major reefs. It is evident from divers' observations that many reefs in Apalachicola Bay are showing the negative effects of decreased rainfall and freshwater flow rates from the Apalachicola River over the past two years, including depressed recruitment and increased natural oyster mortality (predation, disease, and stress associated with high salinity regimes). Additionally, the long-term impairment of reef structure (reef elevations, shell matrix, and shell balance) is of serious concern. Each of the factors contributing to oyster depletion in Apalachicola Bay are discussed below.

Prolonged Drought and Elevated Salinity

Adverse environmental conditions can have a devastating effect on oyster populations; and high salinity is among the most detrimental factors. Because oysters are sessile animals, they are not capable of moving when environmental conditions become less than optimal or sometimes lethal. While oysters can tolerate a wide range of salinities, prolonged exposure to less than optimal conditions will adversely impact affected populations. Oysters become physiologically stressed when salinity levels are below or above optimal levels (10-25 ppt) for extended periods, affecting reproductive potential, spatfall, recruitment, growth and survival.

Rainfall and concomitant river discharge are essential for productive oyster populations in Apalachicola Bay, and provide three critical requirements for survival. First, survival depends upon salinity regimes that are suitable for oysters to reproduce, grow and survive. Rainfall in the drainage basin and discharge into the Bay are essential, as productive oyster populations require a combination for fresh water and marine waters. Fluctuating salinity regimes, within the oyster's tolerance limits, is the single most important factor influencing oyster populations in Apalachicola Bay. Second, rainfall, flooding in the flood plain, and river discharge into the Bay are essential for supplying nutrients and detritus necessary to nourish and sustain food webs and trophic dynamics within the estuarine system. And third, rainfall and river discharge is a critical factor driving fluctuations in salinity levels that prevent destructive predators with marine affinities from becoming established in the Bay. The critical influences of rainfall and river discharge were severely diminished during the past two years. The region and much of the drainage basin have been subject to extensive drought during 2011 and 2012, and these conditions have been reflected in low river stages and low river discharge rates.

Although, environmental conditions improved with relatively normal rainfall and river discharge in 2009 and early 2010, and abundant spat fall was reported on Cat Point and East Hole Bars during 2010, oyster resources have not rebounded completely. Conditions began to decline and drought conditions have persisted in the Apalachicola River Basin since August 2010. With drought conditions returning to the region, decreased rainfall and river discharge have contributed to stress on oyster populations in Apalachicola Bay.

The Florida Panhandle and the Apalachicola River (ACF) drainage basin have experienced prolonged drought conditions for several years, and the reduced freshwater input into Apalachicola Bay has seriously affected oyster populations in the Bay. Poor recruitment and poor survival can be directly attributed to prolonged high-salinity environment, which is also confirmed by the presence of marine predators, primarily stone crabs and Florida rock snails (oyster drills). The predators are present in great numbers and are currently overwhelming oyster populations throughout Apalachicola Bay. Petes et al., (2012) and Wilber (1992) investigated the effects of reduced freshwater flows on oyster populations in Apalachicola Bay and reported adverse impacts resulting from low river flows.

Natural Mortality and Predation

The combination of high salinity and high water temperatures are known to severely stress oyster populations and may result in massive mortality events. It is highly likely that these environmental factors have contributed substantially to natural mortality and low recruitment in the Bay. High salinity and high water temperatures also correlate with the increased prevalence and intensity of the oyster parasite, *Perkinsus marinus*. This parasite (dermo) is often associated with oyster mortality in the hotter summer months and is commonly described as 'Summer Mortality Syndrome' in Florida. The Department participates in the Oyster Sentinel Program in the Gulf and monitors the presence and intensity of *P. marinus* in oysters in Apalachicola Bay.

Observations by divers confirmed the presence and abundance of stone crabs, *Menippe mercenaria*, on the primary oyster reefs in Apalachicola Bay. Stone crab burrows are easy to recognize and the appetite of these destructive predators is obvious. Stone crab burrows are surrounded by living and dead oysters; the result of crabs actively foraging and bringing live oysters to their burrows. The shells of devoured oysters are also present and form a ring around burrows. Examining dead oyster shell provides confirmation of the crushing action of stone crabs on the shell of oysters. Stone crabs are considered primary predators of oysters when salinities remain high for extended periods and crab populations become established on oyster reefs.

Observations and sampling confirmed the presence and abundance of the Florida rock snail, *Stramonita haemastoma*, (formerly *Thais haemastoma*), a destructive snail commonly referred to as an oyster drill. Oyster drills are considered as one of the most serious oyster predators along Florida's Gulf Coast, and have become established in Apalachicola Bay over the past two years. Reports from oystermen suggest that drills are more abundant than at any time in recent memory. It appears that drill populations are moving farther into the estuary as oyster populations in the more marine portions of the Bay are depleted. High numbers of drills were found wherever viable oyster populations were observed. The presence and establishment of snail populations correlate with prolonged high salinity waters. It is also disturbing that drills are completing their

life cycles within the estuary, since egg cases, juvenile, subadult and adult snails are abundant on oyster reefs.

Additionally, the Florida crown conch, *Melongena corona*, was commonly observed on oyster reefs. These conchs are also known to be serious oyster predators with marine affinities. Mud crabs of various species are also common predators on oyster reefs, generally attacking spat and smaller juvenile oysters.

Increased stress associated with high salinity regimes acts to exacerbate the level and intensity of predation by weakening oysters. Prolonged periods of high salinity result in natural mortality from predation which can have a significant impact on oyster populations and result in serious economic losses to commercial oyster fisheries. The presence and abundance of marine predators on oyster reefs in Apalachicola Bay the long duration of high salinity conditions within the estuary.

Harvesting Pressure

Declining oyster population parameters can be associated with harvesting, as well as environmental influences and natural mortality. Reported oyster landings for Franklin County in 2011 increased marginally over 2010 in both production and bags per trip, but harvesting pressure (as measured in reported trips) increased by about 20 percent. Oyster population parameters for Cat Point Bar and East Hole Bar suggest that oyster abundances and potential production is markedly depressed, possibly reflecting the effects of continuous harvesting, poor harvesting practices, as well as, less than optimal environmental conditions in 2010 and 2011. Over harvesting is most damaging when environmental conditions are less than optimal, recruitment is low, and natural mortality is high.

Resource managers believe that several activities associated with harvesting have had a detrimental impact on standing stocks and oyster resources on the primary producing reefs in St. George Sound in eastern Apalachicola Bay. The standing stocks of juvenile, sub-legal, and market-size oysters suggest that the overall condition of many reefs has declined substantially over the past two years as a result of continuous harvesting from Cat Point and East Hole Bars, concentrated and intensive harvesting by the majority of the fishing fleet, and the excessive harvesting of sub-legal oysters.

Vessel counts during the 2011/12 Winter Harvesting Season show that about 60 percent of the fishing fleet was concentrated on Cat Point and East Hole Bars. Fishing effort often averaged more than 120 vessels per day throughout 2011 and 2012 placing added pressure on Cat Point and East Hole Bars. In response to limiting the number of hours harvest can occur each day to control for *Vibrio vulnificus*, additional harvesting days during 2011 and 2012 were implemented which increased fishing pressure and further deteriorated the condition of the resource. Another contributing factor was the management decision to allow harvesting from these reefs during the summer of 2010 in response to the oil spill event (April, 2010). This resulted in an intense harvesting effort which precluded any recovery time for the resource

Harvesting pressure is usually high on reefs in the eastern portion of the Bay at the beginning of the oyster harvesting season, and in 2011 and 2012 harvesting pressure was almost exclusively directed to Cat Point and East Hole Bars. Harvesting pressure on Cat Point Bar and East Hole

Bar in St. George Sound demonstrated an upward trend in effort over the past two years. This change in fishing effort is not easy to explain, since it does not seem to be strictly associated with resource availability. One plausible explanation may be the proximity of St. George Sound to Eastpoint, where many licensed oystermen reside and sell their oysters.

Some of the decline of legal-size oysters can be attributed to the excessive harvesting of sub-legal oysters. Since 2010, there have been numerous reports of oystermen harvesting oysters below the legal size limit, and observations in the marketplace confirmed that the harvest of small oysters was very common during the DWH oil spill event and has persisted to the present. Excessive harvesting of sub-legal oysters from 2010 through 2012 reduced recruitment among sub-legal size classes to legal size, contributing to declining trends in estimated production in 2012/2013. This situation results from harvesting and culling practices of the fishermen, when sub-legal oysters are not culled and returned to the reef to grow to marketable size.

The practice of harvesting sub-legal oysters appears to be an extension of a "use it or lose it" attitude that prevailed during the fall and winter of 2010. Following the oil spill in April 2010, there was an acknowledged threat to oyster resources in Apalachicola Bay, and management policies were directed toward harvesting available resources in the face of a growing risk of loss. Throughout the period when oil posed an unpredictable threat to the oyster fishery, less effort was directed toward enforcing size limits, perhaps, yielding to the view that it would be more beneficial to harvest the available resource. But unfortunately, many oystermen have continued the same harvesting practices that were allowed during the oil spill threat.

The Division's 2011 *Oyster Resource Assessment Report for Apalachicola Bay* (Division of Aquaculture, 2011) stated that oyster population estimates indicated that recruitment would keep pace with harvesting pressure and sustain production throughout the 2011/12 Winter Harvesting Season: with the caveat that increased harvesting pressure and/or the unabated harvesting of sublegal stocks may alter the production / harvesting balance. In 2011, reports of the harvest and sale of oysters below the legal size limit was still common practice, and it is now clear that there are not sufficient numbers of juvenile and market size oysters to support harvesting throughout the up coming season.

Tropical Storm Debby

Tropical Storm Debby made its closest approach to Apalachicola Bay on June 25, 2012 before moving eastward and making landfall near the mouth of the Suwannee River. Despite the fact that Debby never achieved hurricane strength, it was accompanied by moderate storm surge in the Big Bend region. Maximum surge at Apalachicola was 3.51 feet.

The greatest impacts to oyster reefs were expected to be in St. George Sound and western Apalachicola Bay (St. Vincent Bar) because of the long fetch of open water. Scouring was expected as a result of storm surge and wave action across the Bay. Fortunately, most of the storm surge and strongest wave action occurred during high tides when the reefs are most protected from severe hydrological impacts.

Preliminary reconnaissance following T.S.Debby did not indicate severe disruption of oyster reef structure. Examination of shells and live oysters did not display the effects of severe scouring (ex. polished shell surfaces, abrasion, dead oysters) and observations by divers did not

demonstrate extensive disruption of the reef's surface (suspension and deposition of reef shell and sediments, concretion of reef material, or burial of shell and living oysters). Although reef areas were sometimes devoid of live oysters, clusters of oysters were present in adjacent areas that did not indicate severe disturbance. Scouring and wave action may have impacted reef surfaces and oyster resources in some areas, but widespread damage to reef structure was not observed.

Heavy rainfall and coastal flooding may have an adverse impact on oyster reefs closest to the river and distributaries in the river delta, but the sudden influx of freshwater did not appear to cause extensive oyster mortalities on reefs away from the river delta (reefs in the Winter Harvesting Areas). Preliminary reconnaissance and sampling did not identify oyster populations where mass mortalities occurred; it is generally apparent when a mass mortality event occurs from a freshet or poor water quality (low dissolved oxygen concentrations). However, it remains likely that oyster populations in close proximity to the river delta may be subject to prolonged low salinity and associated low dissolved oxygen concentrations, and may suffer mortalities. There have been some reports of recent mortalities (late July) among oysters on reefs in the Summer Harvesting Area (Norman's Lumps).

Fishery Management Implications

The Department of Agriculture and Consumer Services and the Fish and Wildlife Conservation Commission enacted several policies that allowed oystermen a greater opportunity to harvest available oyster resources in Apalachicola Bay in response to the Deepwater Horizon oil spill event and national shellfish program requirements. The Executive Director of the FWCC signed an Executive Order that allowed commercial harvest of oysters from Apalachicola Bay seven days a week beginning September 1, 2011, contingent upon the Standard Oyster Resource Management Protocol (SORMP). On June 1, 2012, the FWCC enacted rule amendments in Chapter 68B-27.017 that allowed harvesting of oysters seven days a week, year round in Apalachicola Bay. This action was taken, in part, to accommodate commercial oyster fishermen for time on the water harvesting that was decreased as a result of recent management practices to enhance public health protection. These practices, consistent with national *Vibrio vulnificus* reduction criteria, imposed more stringent limitations on harvesting times from April through November.

Subsection 68B-27.017(1)(a), Florida Administrative Code, provides that oysters may be harvested for commercial purposes on any day of the week. Subsection (1)(b) provides that - If during the period of November 16 through May 31 DACS establishes that the oyster resources on Cat Point Bar and East Hole Bar can not sustain a harvest of 300 bags per acre (SORMP), then the harvest of oysters for commercial purposes shall be prohibited on Saturdays and Sundays. Results of the current assessment indicated that estimated production on Cat Point Bar and East Hole Bar may not exceed the level provided in the SORMP for DACS to recommend that oyster harvesting for commercial purposes be continued at seven days a week. Oyster resources will be re-assessed in November and recommendations will be forwarded to the Florida Fish and Wildlife Conservation Commission.

Fishery Trends

Analyses of oyster resource assessment data over the past two years indicate several general conclusions regarding oyster resources in Apalachicola Bay.

The outlook for oyster production for the 2012/2013 Winter Harvesting Season in St. George Sound (Cat Point, East Hole, Porters Bar and Platform) is described as "poor". It appears unlikely that oyster populations on Cat Point and East Hole Bars can sustain concentrated harvesting effort throughout the Winter Harvesting Season.

Declining population estimates over the past two years generally indicated that oyster populations are severely stressed. Although oyster population parameters for 2010 and 2011 reflected relatively stable production estimates, declines in 2012 suggest that overall resource availability may not be capable of sustaining current harvesting levels (bags per trip). The number of bags per trip has continued to decline over the past five years.

Prior to 2009, the demand for oysters from Apalachicola Bay was a primary factor limiting harvests, as harvests did not appear to be limited by available stocks. Higher landings in 2009 likely reflected strengthening market demand and increased fishing effort rather than increased resource availability. However, in 2011/2012 demand for Apalachicola Bay oysters increased because of reduced production from historically productive areas in other Gulf states, while oyster resources in the Bay have suffered during the current drought. Consequently, oyster resources may not be adequate to support increased harvesting pressure and meet increased demand throughout the upcoming season.

Table 2. Cat Point Bar Population Estimates: September 2008 to July 2012.

Sample Date	Quadrat (0.25m)	Oyster Number (n)	Mean Leng. (mm)	Density (/m)	Oysters				Bags (/ac)
					>50mm (%)	>75mm (%)	(/m)	1000x (/ac)	
09/08	20	616	55.2	123.2	66.2	17.21	21.2	85.8	381
11/08	10	564	52.0	225.6	55.7	19.33	43.6	176.4	784
12/08	10	333	56.9	133.2	66.1	24.92	33.1	134.3	597
08/09	20	828	50.1	165.6	49.9	15.10	25.0	101.1	449
11/09	10	626	48.2	250.4	50.2	7.83	19.6	79.3	352
04/10	20	969	48.4	193.8	46.7	9.91	19.2	77.7	345
08/10	20	1,043	50.5	208.6	53.9	8.82	18.6	75.3	334
11/10	20	865	52.8	173.0	63.7	12.25	21.2	85.7	381
08/11	15	1,611	48.2	429.6	48.5	5.40	23.2	93.9	417
07/12	10	161	58.8	64.4	67.1	24.84	15.8	64.7	287

Table 2. East Hole Bar Population Estimates: November 2008 to July 2012.

Sample		Oyster	Mean	Density	Oysters				Bags
Date	Quadrat (0.25m)	Number (n)	Leng. (mm)	(/m)	>50mm (%)	>75mm (%)	(/m)	1000x (/ac)	(/ac)
11/08	10	318	57.5	127.2	69.1	22.33	28.4	114.9	510
09/09	20	1,023	49.3	204.6	50.7	9.08	18.5	75.2	334
11/10	10	682	47.0	272.8	48.6	9.38	25.6	103.6	460
07/12	10	127	60.8	50.8	65.3	32.28	16.3	66.3	294

Table 2. Dry Bar Population Estimates: September 2008 to July 2012.

Sample		Oyster	Mean	Density	Oysters				Bags
Date	Quadrat (0.25m)	Number (n)	Leng. (mm)	(/m)	>50mm (%)	>75mm (%)	(/m)	1000x (/ac)	(/ac)
09/08	20	1,487	54.0	293.4	64.1	14.86	43.6	176.4	784
12/08	10	988	47.1	394.4	49.8	7.81	30.8	124.6	554
08/09	20	1,353	48.6	272.6	41.2	6.31	17.2	89.6	309
11/09	10	589	45.6	235.6	41.7	7.13	16.7	67.9	302
08/10	20	877	50.2	175.4	50.5	10.83	18.9	76.8	341
11/10	20	1,313	43.1	282.5	34.4	11.65	30.5	123.8	550
08/11	15	587	47.5	151.2	44.8	11.90	17.9	72.7	323
07/12	10 ^a	150	56.0	60.0	66.0	20.0	12.0	48.6	215 ^a

a - Samples collected from Little Gully on Dry Bar. No live oysters were collected from St. Vincent Bar

Table 2. North Spur (Plant) Population Estimates: September 2008 - July 2012.

Sample		Oyster	Mean	Density	Oysters				Bags
Date	Quadrat (0.25m)	Number (n)	Leng. (mm)	(/m)	>50mm (%)	>75mm (%)	(/m)	1000x (/ac)	(/ac)
09/08	5	284	52.9	227.2	60.6	10.56	23.9	97.0	431
09/09	10	541	49.5	216.4	49.9	12.75	27.5	111.6	496
04/10	5	1040	48.0	832.0	50.4	6.10	42.4	171.7	763
08/11	5	269	52.9	215.2	58.0	15.89	34.4	139.2	619

07/12	10	362	53.4	144.8	57.5	18.23	26.4	106.8	475
-------	----	-----	------	-------	------	-------	------	-------	-----

Table 2. Green point (Plant) Population Estimates: September 2008 - July 2012.

Sample		Oyster	Mean	Density	Oysters				Bags
Date	Quadrat (0.25m)	Number (n)	Leng. (mm)	(/m)	>50mm (%)	>75mm (%)	(/m)	1000x (/ac)	(/ac)
09/08	10	482	58.8	192.2	75.9	20.33	39.2	158.6	705
09/09	10	274541	48.2	109.6	44.1	17.52	19.2	77.7	345
09/11	10	510	54.4	204.0	65.5	12.94	26.4	106.5	474
07/12	5	125	59.6	100.0	66.0	28.00	28.0	113.3	503