

DEP CONTRACT NO. WM991
AMENDMENT NO. 1

RUSH

THIS CONTRACT as entered into on the 17th day of July, 2012, between the FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION (hereinafter referred to as the "Department") and TEXAS A & M UNIVERSITY (hereinafter referred to as the "Contractor") is hereby amended as follows:

- Paragraph 4 is hereby revised to change the completion date of the Contract from January 16, 2013 to March 15, 2013 (a two (2) month no-cost extension).
- In order to revise the Time Schedules for Completion of the tasks, Attachment A, Scope of Work, is hereby deleted in its entirety and replaced with Attachment A-1, Revised Scope of Services, attached hereto and made a part hereof. All references in the Contract to Attachment A shall hereinafter refer to Attachment A-1.

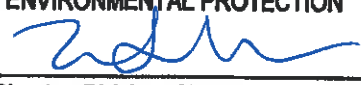
In all other respects, the Contract of which this is an Amendment, and attachments relative thereto, shall remain in full force and effect.

IN WITNESS WHEREOF, the parties have caused this Amendment to be duly executed the day and year last written below.

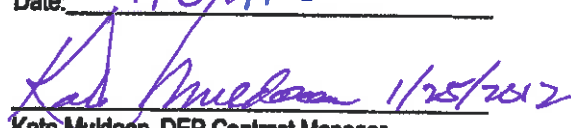
TEXAS A & M UNIVERSITY

By: 
Title: Katherine V. Kissmann
Director, Contracts & Grants
Date: January 16, 2013

FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

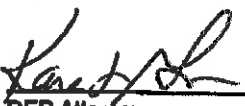
By: 
Director, Division of Environmental Assessment
And Restoration or designee

Date: 1/29/13

 1/25/2012
Kate Muldoon, DEP Contract Manager


DEP Contracts Administrator

Approved as to form and legality:


DEP Attorney

List of attachments/exhibits included as part of this Amendment:

Type	Letter/Number	Description
Attachment	A-1	Revised Scope of Services (4 pages)

ATTACHMENT A-1

REVISED SCOPE OF SERVICES

GOMA Project— Compile information to identify high-risk Harmful algal blooms (HAB) introduction and transfer mechanisms and identify areas already known to be high risk or hotspots.

For this project, the Contractor will specifically examine ships' ballast water as a transfer mechanism for HABs.

Introduction— Increased transportation of ships' ballast water from port to port has attributed to an increase in the number of harmful algal blooms (HABs) occurring globally over the last several decades (Anderson, 2009). The combination of larger ballast tanks, accelerated international commerce, and shorter transit times contribute to the increasing rate of successful HAB invasions in coastal bays and estuaries (Cohen and Carlton, 1998). Already in the early 1900's ships ballast water was suspected as a vector for a bloom of an Asian species of *Odontella sinensis* (*Biddulphia*) in the North Sea. More recently, Burkholder and colleagues (2007) reported on the presence of 100 phytoplankton species (23 potentially harmful) in 62 ballast tank samples collected from U.S. Navy ships docking at the west and east coasts of the U.S.

Preliminary data—The Contractor has been analyzing ships' ballast water uptake and discharge records for the Port of Houston. In 2010, 9,488,177 metric tons of 'domestic' and 11,605,291 metric tons of 'foreign' ships' ballast water were discharged into Port of Houston waters (figs 1 and 2) (Morris and Brinkmeyer, in prep). These data were obtained from National Ballast Information Clearinghouse (NBIC) database (<http://invasions.si.edu>) maintained by the Smithsonian Institute and the U.S. Coast Guard. For every U.S. port, the NBIC receives ballast uptake and discharge information that includes ship name, IMO call number, last port visited, number of ballast tanks, latitude/longitude of ballast water uptake, exchange, and discharge plus the volumes, method of ballast water management, and notes on exceptions (i.e. justification to forego ballast water exchange (BWE)). The forms are submitted to the database via internet or fax. Ballast water 'source' is delineated by the U.S. Coast Guard using the Exclusive Economic Zone (EEZ; between 3 and 200 nautical miles (nm) offshore—note for Texas and western Florida it is between 9 and 200 nm). Ballast water is either 'overseas' i.e. taken on at foreign ports or in blue water outside of the U.S. EEZ or 'coastwise' if taken up within the EEZ. During the Contractor's review of 2010 Ballast Reporting records for the Port of Houston, several ships were found that utilize ambiguities in the U.S. federal regulations. The definition of 'overseas' and 'coastwise' in the regulations is obviously interpreted rather loosely by some ships. To paraphrase '33 CFR 151.2036' of the U.S. Code of Federal Regulations (CFR), "ballast water taken up in U.S. ports or within the EEZ or within 200 nm is classified as coastwise". This means that ballast water taken up at ports in the U.S. Virgin Islands, Puerto Rico, or any other U.S. territory, regardless of geographic location, ocean, etc., can be discharged at ports in the contiguous U.S. without implementing BWE in open water. The rationale for BWE in open water is to flush out fresh water organisms, typical of ports, and take up salt water so that the freshwater organisms that remain cannot survive. More interesting, from a biologist's perspective, is the finding that ships taking up ballast water at ports in the Bahamas and most of the Pan-American ports (e.g. Mexico, Central and South America-Southern Gulf of Mexico, Pacific or Caribbean) also do not undergo BWE if they sail within the 200 nm boundary and then cite the 33 CFR 151.2036 to justify discharge of 'foreign' water at U.S. ports.

The regulations for discharge of ballast water from domestic sources are also interpreted loosely. For example, ships taking on ballast water at ports along the upper East Coast remain within the EEZ en route to the Gulf of Mexico and then discharge their ballast without undergoing any type of ballast water management like BWE. According to the U.S. Coast Guard, all waters within 200 nm of the U.S. coast are the 'same geographic' ocean. BWE often requires several days and can be hazardous for ships due to potential listing (tilting). The cost of fuel and the time delay for BWE, are the greatest motivation for ships to find creative ways to use loose definitions of the CFRs to classify their ballast water as the 'same geographic water'. Inclement weather and rough seas are also an accepted justification to forego BWE.

The opening of the newly widened Panama Canal in 2014 is expected to more than quadruple imports from Asia to the Port of Houston. The Port of Houston is currently constructing additional deep draft terminals to accommodate the 12,000 to 14,000 Twenty-foot equivalent (TEU) container 'Post-Panamax' mega-sized container ships. In anticipation of these new markets, large chain stores such as Walmart are building their own terminals at the Port of Houston Bayport complex (portofhouston.org). Ports in other Gulf States are making similar preparations.

Based upon the screening of ships ballast water reporting data for just one year, it is obvious that there is much to learn and understand about the activities of the shipping industry in the Gulf of Mexico.

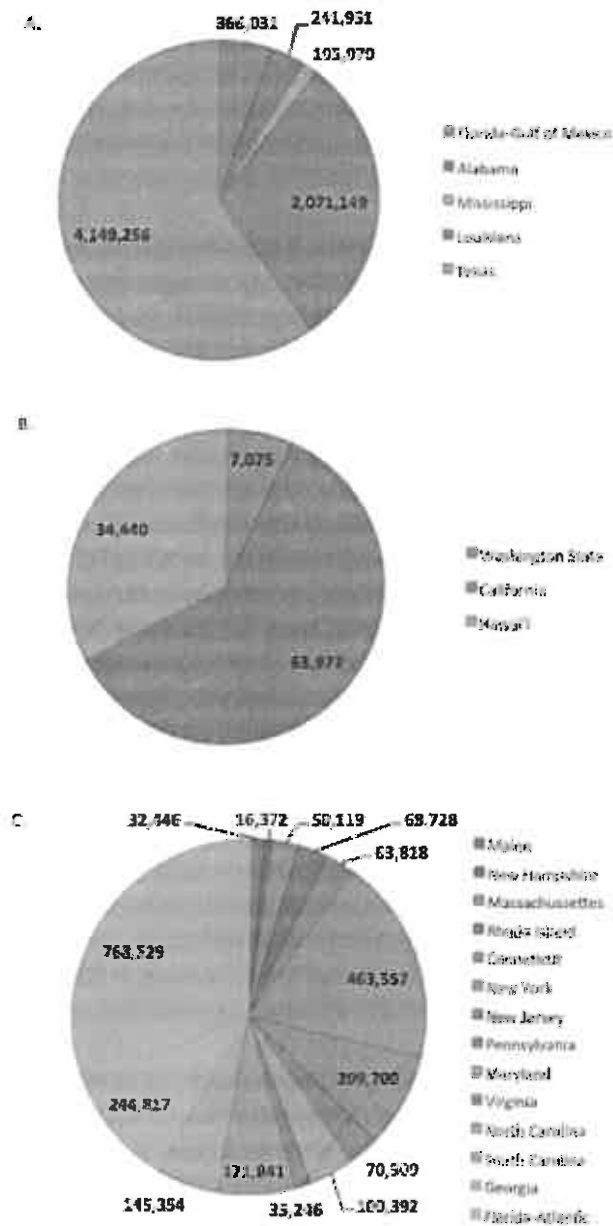


Figure 1. Ships' ballast water (metric tons) discharged at the Port of Houston in 2010 from U.S. ports (Data are combined per ocean and state).

a) Gulf of Mexico States; b) Pacific Ocean States; c) Atlantic Ocean States.

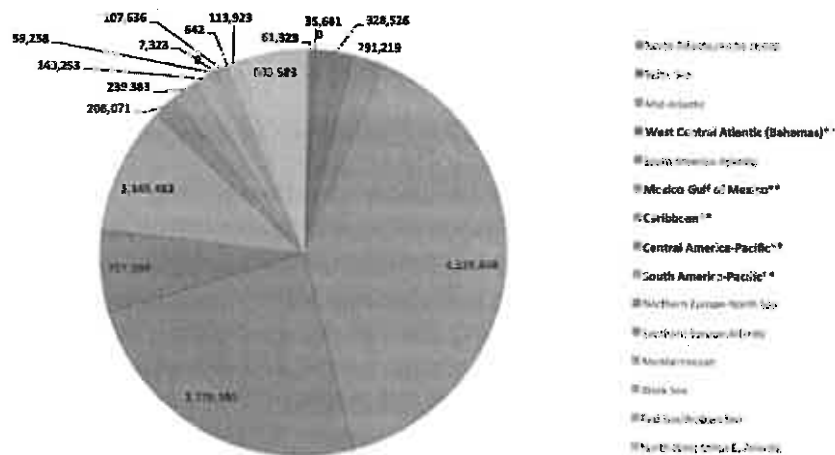


Figure 2. Foreign water sources of ships' ballast water (metric tons) discharged at the Port of Houston in 2010. Double asterisks next to ocean names in the legend indicate frequent lack of BWE by ships with the justification that these and U.S. waters are geographically the same.

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Schedule of Tasks, Deliverables and Invoice Amounts

The Contractor shall be responsible for the completion of the following tasks and for the submittal of the deliverables by the specified due dates.

Task	Due Date	Deliverable	Performance Measures	Financial Consequences	Invoice Amount
1) Compilation of available ballast management records from January 1, 2008 to present for ships entering and leaving the major ports in the Gulf of Mexico(GOM), (data would include relevant info such as ship type, recent ports of call, volume and source(s) of ballast water discharged at GOM ports, or exchange in GOM waters).	4 weeks after contract execution				
2) Literature review of risk analyses studies for HAB species introduction by ballast water from ballasting/de-ballasting practices.	8 weeks after contract execution				
3) The identification of potential 'high risk' areas or 'hot-spots' in the Gulf of Mexico based on information gathered for objectives 1 and 2. These could be ports, ballast water exchange zones, or lightering areas.	16 weeks after contract execution	Electronic summary of raw data. These data will also be included in final report.	Data will be reviewed by DEP staff and comments will be provided for inclusion in written report.	No payment for unsatisfactory work*	\$ 6,000.00
4) Create a written report that presents the findings from obj. 1-3, as well as recommended next steps	March 1, 2013	Written Report (three hard copies and electronic file) including findings and recommendations	Report will be reviewed by DEP staff to ensure that comments have been incorporated and scope of work is fully addressed.	No payment for unsatisfactory work*	\$ 2,024.24
TOTAL:					\$ 8,024.24

*Payment will be made for deliverables deemed acceptable to DEP. DEP's acceptance of services and deliverables will not be unreasonably withheld and will be based on TAMU's completion of services and deliverables in accordance with the terms of this Agreement and the Project Scope of Work.

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