



**THIS IS NOT  
AN ORDER**

**REQUEST FOR BIDS/PROPOSALS COVERSHEET**  
**THE UNIVERSITY OF SOUTHERN MISSISSIPPI**  
**Procurement and Contract Services**  
**118 College Drive #5003, Hattiesburg, Mississippi 39406-0001**

**Date:** January 2, 2020

Name: \_\_\_\_\_

**Bid No. 20-20**

Company: \_\_\_\_\_

THE UNIVERSITY OF SOUTHERN MISSISSIPPI is considering the purchase of the following item(s). We ask that you submit your bid and retain one copy for your files. Right is reserved to accept or reject any part of your bid. Your quotation will be given consideration if received in Bond Hall, Room 214 on or before:

Address: \_\_\_\_\_

2:00 p.m. CT

City/State/Zip: \_\_\_\_\_

TERMS - Bidder should state terms of sale. Our terms are 2% ten days, net 45 days.

January 28, 2020

These terms will apply per Mississippi law.

AWARDING CONTRACT - Cash terms will not be used as a basis for awarding contracts; however, the University will accept cash discounts when earned.

**Buyer:** Jessica Whitten

**NOTE:** If you cannot quote on the exact material shown, please indicate any exception giving brand name and complete specifications of any alternate. If additional space is required, use a separate sheet or letter of transmittal.

ITEM	QUANTITY	DESCRIPTION	UNIT PRICE	TOTAL NET PRICE
		<p><b>RFx #3160003386</b></p> <p><b>DESCRIPTION</b></p> <p><b>Bid 20-20 Aquabotix</b></p> <p>PROPOSAL MUST BE RETURNED TO THE UNIVERSITY IN ACCORDANCE WITH THE SPECIFICATIONS. RFP NUMBER AND DATE OF BID OPENING MUST BE SHOWN ON THE OUTSIDE OF THE ENVELOPE IF USING THAT METHOD.</p>		

We quote you as above - F.O.B. The University of Southern Mississippi.  
Shipment can be made in \_\_\_\_\_ days from receipt of order. DATE \_\_\_\_\_  
Return quotation to Procurement Services at above address.

**Signature Required** \_\_\_\_\_

**The University of Southern Mississippi**  
**Request for Bid # 20-20**  
**SPECIFICATION FOR Micro- Autonomous Underwater Vehicles**

**I. Background**

The University of Southern Mississippi (USM) is looking to procure small autonomous vehicles for use in the five-week Unmanned Maritime Systems (UMS) Certificate program, currently being taught at USM's Marine Research Center. To keep the program relevant in the latest low-cost technology, USM is seeking an integrated Micro-AUV system with multiple vehicles to utilize for training purposes, in addition to assist in ongoing research projects in the Mississippi Sound.

**II. Purpose**

A key goal is the purchase of five (5) low-cost, beach deployable and integrated AUVs with user-friendly interface system and swarming (networked) capability. The micro-AUVs will be used as a hands-on teaching aid in the UMS course. Furthermore, the micro-AUV system will be used to characterize oceanographic features in the Mississippi Bight.

**III. General Performance Specification**

The vehicles shall perform missions in coastal waters in depths ranging from 0.5 to 50 meters and in water temperature ranging from 0° C to 35° C. The vehicles shall have the mission of swarming and vertical sampling capabilities. The application of these vehicles requires onboard temperature and pressure sensors, with availability of future sensor capability, with company input. The vehicles should be able to communicate with each other for swarming operations. The vehicles size and weight shall enable easy, man-portable launch and retrieval from the beach or small vessels by a single person without the need for specialized equipment.

**IV. Required Specification**

The following specifications are to ensure that the vehicles will perform the tasks necessary to satisfy the project's objectives. Any deviation from the following specifications must be explained and justified. Table 1 provides a summary of basic vehicles characteristics and required specifications. The following sections provide more detailed requirements.

Vehicle Characteristics	Specification
Maximum Depth	50 meters or greater with 1.5 safety factor
Speed Range	Minimum of 0.5 to 2.2 meters/second (1-4 knots)
Vehicle power	Rechargeable Lithium Ion or Lithium Polymer Batteries. 4-5 hour recharge time.
Endurance	Minimum of 2 hours at cruising speed of 2-3 knots with all onboard sensors, communication, and navigation equipment online.
Data Storage	Data storage capacity shall provide the capability to store all data from all sensors and equipment listed in this bid specification while operating for 2 continuous hours.
Vehicle Size	0.5m to 1m in length
Operational Salinity Range	0-40 ppt (via ballast adjusting)
Operational Temperature Range	-0°C to +35°C
Transportation Temperature Range	-10°C to +45°C
GPS receiver	-/+ 2m accuracy
Inertial Navigation	3-axis Accelerometer, Gyroscope, geomagnetic sensors
Surface Communication	Radio modem with minimum range of 200 m
Oceanographic Sensors	Temperature (+/-0.1°) and Pressure, with additional sensor add-on capability
System communications	Between control systems communication and vehicles for Swarming capability

Table 1

#### A. Basic Vehicle

1. Maximum Operating Depth shall be 50 meters or greater with a built in 1.5 safety factor for the entire vehicles including all sensors.
2. The vehicles should be less than 1m in length.
3. Velocity of the AUVs shall be variable over the range of 0.5 to 2.2 m/s (0.5 to 5.0 knots) or better.
4. Endurance: The vehicles shall be capable to autonomously collect data and operate for a minimum of 2 hours at a standard survey speed of 2-3 knots. The vehicles must be able to supply power for 2 hours to all sensors for data collection. The vehicles shall be powered by rechargeable lithium ion or lithium polymer batteries.
5. The vehicles shall have data storage capability for 2 hours of continuous run time with all vehicles sensors and equipment operating. This includes all required and optional equipment described in this specification.
6. Directional control of the AUVs shall be capable of allowing the vehicles to conduct linear transects or vertical surveys of the water column. The vehicles shall communicate with other systems for swarming capabilities.

7. Powering the AUVs on and off shall be done without opening the AUV. The AUV shall have a connection in the hull to allow external power and communications to be connected for data downloading and lab testing. This connection or another shall be provided for charging of the internal batteries.

## **B. Control**

1. Programming the AUV's survey path, setup of sensor parameters, data transfer from the AUV and monitoring the status of the AUV setup shall be done via a PC based field operation console. A graphical user interface (GUI) shall be provided with a selection of settings via parameter selection and not via command input at a prompt. The GUI shall provide a minimum of:
  - a. Parameter entry of the mission plan, automatic error checking to be performed on all aspects of the planned mission, and warning messages if any mission parameters are conflicting.
  - b. A map view showing the planned mission for review.
2. Connecting the vehicles to the field operation console for programming, configuration shall not require opening the vehicle's hull. If this connection is exposed, then it should have a waterproof closure.
3. All sensor data shall be time stamped and be exportable into a format that is directly importable into a scientific computing/spreadsheet software such as Matlab or Excel.

## **C. Safety Features**

1. The AUVs shall have the ability to receive mission commands during the mission while on the surface via the surface modem. Vehicle commands required, but not limited to, are to abort mission, navigational corrections, ability to turn sensors on or off, etc.
2. The AUV shall have a strobe light that can be activated when the vehicles are on the surface from the support vessel.

## **D. Navigation**

1. Navigation system is linked to a GPS with +/- 2m accuracy and a compass and Inertial Measurement Unit (IMU) with at least 3-axis values.

## **E. Communications**

1. The AUVs shall have an RF Radio modem for surface communications. The vendor also will supply a field operation console capable of communicating with and tracking the vehicles via the RF radio link.

## **F. Sensors**

The following sensors must be included on the vehicles and must be time synchronized and spatially referenced with data from other sensors and the positioning/navigational data.

1. Temperature sensor with a +/- 0.1°C accuracy and a pressure sensor.

2. Ability to add additional oceanographic sensors, with support from the company.

## **V. Software**

- A. The vendor shall provide a mission planning and management software. This software must allow the user to plan the AUVs mission from a graphical user interface and must be capable of displaying the position of the vehicles as tracked during the mission by radio. Both mission planning and vehicles-tracking information must be overlaid graphically on a chart/map.
- B. The vendor will provide a means of reviewing vehicles performance after completion of a mission. Software must be provided for displaying and assessing vehicles performance, or the vehicles logs must be accessible in a documented format such that in-house analysis may be performed.

## **VI. Transportation of Equipment**

The equipment will be transported to various sites where it will be mobilized or returned to the vendor for repairs, and as such needs to be easily transportable. Ground and air transportation will require that the AUVs will be disassembled into components that will fit into padded shipping cases provided by the vendor.

## **VII. AUV Deployment and Recovery**

The ability to recover and deploy the AUVs from a large variety of vessel sizes as well as from the shore is a key capability of the intended vehicles. The AUVs will need to be beach and vessel deployable without the need for specialized launch and recovery equipment. Therefore, vendors must assume that the AUVs will be deployed and recovered by hand with minimal equipment.

## **VIII. Warranty Services**

At a minimum, the Contractor shall provide Software/Hardware Warranty support for one year from acceptance. Longer warranty periods are preferred.

The Vendor shall agree to repair, adjust, and/or replace (as determined by the University to be in its best interest) any defective materials at the Vendor and/or manufacturers' sole cost. The University will incur no costs for service or replacement of materials during the warranty period.

The Vendor will be the sole point of contact for warranty issues.

## **IX. Documentation**

The Contractor shall provide Operations and Maintenance manuals to USM. Documentation provided shall include, but not be limited to the following:

- A. Theory of operation
- B. Operating procedures
- C. Troubleshooting and maintenance procedures
- D. Documentation of the various software packages

### **X. Other**

The vendor shall provide a “field repair kit” containing a set of parts, which can be expected to need periodic replacement while operating the vehicles in the field. Included in the kit will be all tools to accomplish this task. A field case to transport the kit must be supplied by the vendor. The vendor shall supply lists and pricing for spare parts necessary to repair and maintain the AUVs for a period of at least two (2) years.

### **XI. Training**

The vendor shall provide training on the operation, software, maintenance and troubleshooting of the AUVs for a minimum of six persons at the USM location or some other agreed upon site. This must include at least one actual deployment & recovery of the system as well as mission planning and basic mission data analysis.

### **XII. Proof of Performance**

The vendor shall provide a proven record of the vehicle’s performance with documentation of multiple successful missions in offshore waters. The vendor must demonstrate that all integrated sensors operate in accordance of the above requirements.

### **XIII. Copies**

At least one (1) signed original copy of the bid response **MUST** be provided. The University **requires** a portable electronic virus/malware free copy (thumb drive) of the bid response from the responding Vendor to be included in the bid response package. If an electronic copy is not included, the University reserves the right to request an electronic copy of the **exact** bid response prior to review of the bid.

### **XIV. Mandatory Legal Provisions**

- Any provisions disclaiming implied warranties **shall** be null and void. See Mississippi Code Annotated Sections 11-7-18 and 75-2-719(4). The Vendor **shall** not disclaim the implied warranties of merchantability and fitness for a particular purpose.
- The Vendor **shall** have no limitation on liability for claims related to the following items:
  - Infringement issues;
  - Bodily injury;
  - Death;
  - Physical damage to tangible personal and/or real property; and/or

- The intentional and willful misconduct or negligent acts of the Vendor and/or Vendor's employees or subcontractors.
- All requirements that the University pay interest (other than in connection with lease purchase contracts not exceeding five years) are deleted.
- Should any of the terms and conditions in the purchase contract conflict with the laws of the State of Mississippi, the laws of the State of Mississippi **shall** supersede and govern. A revision of the terms and conditions will be required to ensure compliance with Mississippi state law.
- The University **shall** not pay any attorney's fees, prejudgment interest or the cost of legal action to or for the Vendor.

### **XV. Payment**

The currency used for payment of costs will be in United States dollars.

State law requires that the University receive an **original invoice** from the Vendor and that payment of the invoice is processed **within 45 days of receipt** (Miss Code 31-7-305). The invoice should be on the Vendor's letterhead and/or include an original Vendor representative signature.

### **XVI. Pre-Payments with Pro-Rata Refund**

State law (Section 31-7-305 of the Mississippi Code Ann.) authorizes the issuance of payment after receipt of the invoice and receipt, inspection, and approval of the goods and/or services. The intent is that goods and services must be received, inspected, and accepted prior to payment. Pursuant to this requirement, where pre-payment has been authorized, all pre-payment contracts will require the following statement in the Termination section: "Upon termination of this Agreement by Licensee or by Licensor, Licensor shall issue Licensee a refund of a proportionate share (based on the number of days in the term year before and after the termination) of the Annual Fees paid with respect to that term year."

### **XVII. USM Terms and Conditions**

Unless written exception is provided in the RFP response, the winning Vendor agrees to be bound by the USM Terms and Conditions, which are incorporated herein, and may be found at <https://www.usm.edu/procurement-contract-services/usm-terms-and-conditions>.

**THE UNIVERSITY OF SOUTHERN MISSISSIPPI  
PROCUREMENT SERVICES  
118 COLLEGE DRIVE #5003  
HATTIESBURG, MS 39406-0001**

**GENERAL TERMS, CONDITIONS AND INSTRUCTIONS FOR BIDS/PROPOSALS**

- 1.) Failure to examine any drawings, specifications, and instructions will be at bidder ' s risk.
- 2.) Samples of items when called for must be furnished free of expense and if not destroyed in testing, will, upon request, be returned at the bidder ' s expense. Request for the return of samples must be made within ten (10) days following opening bids. Each individual sample must be labeled with bidder ' s name and manufacturer ' s brand name and number.
- 3.) Bids must be signed and sealed with bidder ' s name and address on the outside of the envelope, and the time and date of the bid opening and the bid file number shown in the lower-left corner of the packages; envelopes, express mailing labels, boxes, etc.
- 4.) In order for your bid to be considered, it must be received and time stamped in our office by 2:00 P.M. of the bid opening date. It is the responsibility of the vendor to ensure their bid is received within the appointed time. If your bid package is not received in Bond Hall, Room 214, by 2:00 P.M. of the bid opening date, it will not be considered.

If you are delivering your bid, you need to hand carry the bid package to:

The University of Southern Mississippi  
Procurement Services  
Bond Hall, Room 214  
Hattiesburg, Mississippi

If you are mailing your bid package via U.S. Postal Service, mail to:

The University of Southern Mississippi  
Procurement Services  
118 College Drive #5003  
Hattiesburg, MS 39406-0001

If you are express mailing your bid package via Federal Express or UPS, or any other delivery service which requires the use of a physical address, deliver to:

The University of Southern Mississippi  
Receiving Department  
2609 West 4<sup>th</sup> Street  
Hattiesburg, MS 39401



- 5.) Bids or proposals shall not be modified, corrected, altered, or amended after the specified closing time and the opening of such bids, unless otherwise noted in the request for bids or proposals.
- 6.) The University of Southern Mississippi reserves the right to reject any and all bids, to waive any informality in bids, and unless otherwise specified by the bidders, to accept any items on the bid. If the bidder fails to state the time within which bids must be accepted, it is understood and agreed that The University of Southern Mississippi shall have 60 days to accept. The University of Southern Mississippi reserves the right to make an award to this bid on an all or none basis, or on a line by line basis, whichever serves the best interest of The University of Southern Mississippi.
- 7.) Contracts and purchases will be made or entered into with the lowest, responsible bidder meeting specifications.
- 8.) A written purchase order or contract award mailed or otherwise furnished to the successful bidder within the time of acceptance specified in the Invitation for Bid results in a binding contract without further action by either party. The contract shall not be assignable by the vendor in whole or in part without the written consent of The University of Southern Mississippi.
- 9.) Bid files may be examined during normal working hours by bid participants. Non-participants will be prohibited from obtaining any information relative to the bid until the official award has been made.
- 10.) If purchase orders or contracts are canceled because of the awarded vendor's failure to perform or request for price increase, that vendor shall be removed from our bidders' list for a period of 24 months.
- 11.) No addendum will be issued within a period of two (2) working days prior to the time and date set for the bid opening. Should it become necessary to issue an addendum within the two-day period prior to the bid opening, the bid date will be reset giving bidders ample time to answer the addendum.
- 12.) Alternate bids, unless specifically requested or allowed, will not be considered.
- 13.) Bid openings will be conducted open to the public. However, they will serve only to open the bids. No discussion will be entered into with any vendor as to the quality or provisions of the specifications, and no award will be made either stated or implied at the bid opening. After the close of the bid opening meeting, the bids will be considered to be in the evaluation process and will not be available for review by bidders. Proposal openings are not required to be open to the public; however, the resulting award is open for public inspection.
- 14.) Prices quoted shall be firm for the term of the contract or for the stated time of

acceptance.

- 15.) The bidder understands that The University of Southern Mississippi is an equal opportunity employer and, therefore, maintains a policy which prohibits unlawful discrimination based on race, color, creed, sex, age, national origin, physical handicap, disability, or any other such discrimination; and the bidder, by signing this bid, agrees during the term of agreement that the bidder will strictly adhere to this policy in its employment practices and provision of products or services.
- 16.) Bidders must upon request of The University of Southern Mississippi furnish satisfactory evidence of their ability to furnish products or services in accordance with the terms and conditions of these specifications. The University of Southern Mississippi reserves the right to make the final determination as to the bidder's ability.
- 17.) Questions or problems arising from bid procedures should be directed to the Buyer listed on the solicitation at:

The University of Southern Mississippi  
118 College Drive #5003  
Hattiesburg, MS 39406-0001  
Phone: (601) 266-4131
- 18.) All items must equal or exceed the specifications listed. The absence of detail specifications or the omission of detail description shall be recognized as meaning that only the best commercial practices are to prevail and that only first quality materials and workmanship are to be used.
- 19.) It is the intent of the specifications to obtain a product that will adequately meet the needs of the user while promoting the greatest extent of competition that is practicable. It is the responsibility of the prospective bidder to review the entire Invitation to Bid packet and to notify The University of Southern Mississippi if the Specifications, Instructions, General, or Special Conditions are formulated in a manner which would unnecessarily restrict competition.
- 20.) It shall be incumbent upon the bidders to understand the specifications. Any requests for clarifications shall be in writing and shall be submitted to our Procurement Services office at least five (5) days prior to the time and date set for the bid opening, unless otherwise noted in the bid or proposal specifications.
- 21.) The minimum specifications are used to set a standard and in no case are used with the intention to discriminate against any manufacturer. Bidders should note the name and the manufacturer and model number of the product they propose to furnish and submit descriptive literature.
- 22.) Trade names, brand names, and/or manufacturer's information used in these specifications are for the purpose of establishing quality, unless otherwise noted. Bids on

products of other qualified manufacturers are acceptable, provided they are demonstrated as equal to those specified in construction, design and suitability. Each bidder shall submit with his bid a complete brochure with pictures on each item and shall point out specifically any deviations from the specified items. Failure to do so may disqualify any bid. Please bid as specified or an approved equal.

- 23.) A copy of the manufacturer's standard guarantee/warranty shall accompany and become a part of this bid.
- 24.) There are no federal or state laws that prohibit bidders from submitting a bid lower than a price or bid given to the U.S. Government. Bidders may bid lower than U.S. Government contract price without any liability as The University of Southern Mississippi is exempt from the provisions of the Robinson-Patman Act and other related laws. In addition, the U.S. Government has no provisions in any of its purchasing arrangements with bidders whereby a lower price to The University of Southern Mississippi must automatically be given to the U.S. Government.
- 25.) All invoices, unless noted otherwise, are to be billed to:
- The University of Southern Mississippi  
Accounts Payable  
118 College Drive #5104  
Hattiesburg, MS 39406-0001
- 26.) All equipment bid shall be of current production and of the latest design and construction.
- 27.) Where all, or part(s), of the bid is requested on a unit price basis, both the unit prices and the extension of the unit prices constitute a basis of determining the lowest responsible and responsive bidder. In cases of error in the extension of price, the unit price will govern.
- 28.) Should the University of Southern Mississippi close due to inclement weather conditions, or any other unforeseen events on the bid opening date, sealed bids will open the following business day at the same time and location.
- 29.) As an alternative to traditional sealed bids in envelopes, the University of Southern Mississippi is capable of receiving electronic bid responses. While this option is available, it is not required and we ask that all potential respondents keep in mind that with any electronic system there could be delays or glitches with the submission process; therefore the University highly encourages traditional sealed bids which are either mailed or submitted in person. Should a vendor choose to submit their response electronically, please follow the instructions below using the following website: [https://www.ms.gov/dfa/contract\\_bid\\_search/Home/Sell](https://www.ms.gov/dfa/contract_bid_search/Home/Sell). On this site you will find helpful links to procurement opportunities, as well as a link to supplier registration. If not already registered in this system, potential bidders will first need to click on 'Supplier

Registration' and follow the steps outlined (a one-time process). Once registered, they can return to the original website and click on 'Procurement Opportunities' where they can either search by keyword for the bid they desire to respond to or leave the search box blank and click 'Search' for a listing of all current bids and proposals for the various State of Mississippi offices.

With regard to construction bids, there is one additional step required during the bid submission process. Along with the bid response and other attachments, contractors will also need to attach their Certificate of Responsibility (COR), or a statement that the bid enclosed does not exceed Fifty Thousand Dollars (\$ 50,000.00). If their COR or such statement is not attached, the bid will be invalid and not considered.

**AA/EOE/ADA**