



**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: August 10, 2020

Bid No. 21-08

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:

2:00 p.m. CT

August 27, 2020

Buyer: Jessica Whitten

Name: _____

Company: _____

Address: _____

City/State/Zip: _____

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

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.

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>RFx #3160003834</p> <p>DESCRIPTION</p> <p>Bid 21-08 Network Node</p> <p>PROPOSAL MUST BE RETURNED TO THE UNIVERSITY IN ACCORDANCE WITH THE SPECIFICATIONS. BID 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 _____ TERMS _____
Return quotation to Procurement Services at above address.

Signature Required _____

**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 4th 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. 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

**The University of Southern Mississippi (USM)
Request for Bid #21-08**

Specifications for a Scalable High-Resolution Nested Underwater Sensor Network

I. Background

There is a critical military engineering need to map localized areas and forecast the hydrodynamic conditions in the nearshore-ocean and coastal marine environments. The University of Southern Mississippi's (USM) School of Ocean Science and Engineering (SOSE) proposes to develop a unique functional prototype scalable shallow-water underwater sensor network for the Mississippi Sound / Bight region that allows for highly resolved (5 to 10-meter resolution) measurements of hydrodynamic and oceanographic conditions. These data will be used to understand and validate the performance of a complex nearshore modeling environment.

The area that extends between Cat Island and west Ship Island are elements of the barrier island chain that separates the nearshore waters of the Mississippi Sound and the shelf waters of Mississippi Bight. USM proposes to expand its unique and successful 4-D Ocean Cube test and evaluation area to include a nearshore component. As part of this expansion, USM will develop a high-resolution near-shore coastal test area (HRTA) within this expanded cube.

The HRTA area will be located in the waters between the offshore islands and the Mississippi coastline. The HRTA will be instrumented with a scalable high-resolution underwater sensor network (HRSN). This nested sensor underwater network will be designed to monitor the oceanographic and atmospheric conditions along the coastline and near the Gulfport shipping channel. These network sensors nodes will provide continuous spatial and temporal measurements of water column temperature, dissolved oxygen, salinity and current profiles, sediment water column concentrations (turbidity), and tide and wave spectra. A layout schematic of this nested sensor network concept is shown in Figure 1.

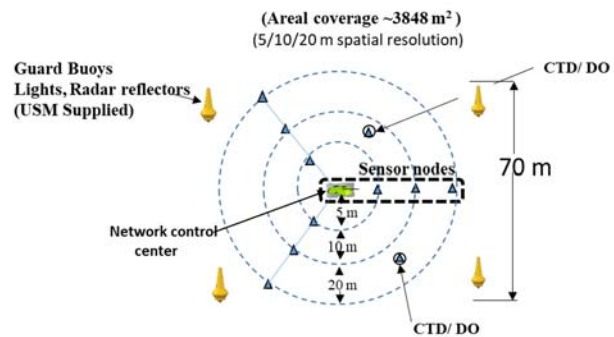


Figure 1. Nested Sensor Node System concept

The individual sensor nodes will be deployed out from the central network control center in three directions. The data from these nested sensors nodes will be hard wired to a central network control center that will assemble and configured the data for transmission to USM's data fusion center via a cellular modem located on small moored surface gateway buoy. This gateway surface buoy will also be instrumented with atmospheric sensor systems and provide data on wave spectra, wind speeds, and directions.

These network sensor data will provide measurements of the critical oceanographic and atmospheric data required for modeling and local model forecast verifications. USM will expand its current Ocean Cube server systems and networks to include modeling and data visualization for the expanded nearshore ocean cube and HRTA. This transmitted sensor data will be transmitted to USM's data fusion center and will form part of the model verifications and enhanced visualization product development.

II. Purpose

As part of a near-shore measurement and modeling effort USM in conjunction with its research partners will procure, and deploy a unique scalable HRSN within the HRTA. These nested sensor systems will provide temporal and spatial measurements of the critical variables required for verifying numerical models and local model forecasts. This includes the data processing, visualization products, and ocean measurements required to validate the performance of this nearshore modeling environment. A schematic showing the layout concept of the nested sensors, moorings, control center, and surface buoy is shown in Figure 2.

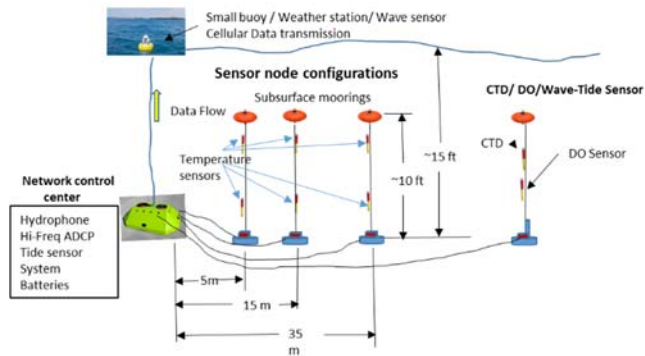


Figure 2. Nested sensor system mooring concept

This document contains the minimum requirements needed for the design of a complete and integrated advanced nested and scalable underwater sensor network. This system with installed sensors shall be required to provide autonomous environmental measurements including meteorological, oceanographic and climate measurements at with the accuracy, resolution, and sampling regimens as determined by the applicable USM program.

These data from the underwater sensor system's measurement systems will be transmitted to shore via cellular communications. USM will decode these data and send it to NOAA for their Quality Assurance (QA) and Quality Control (QC) checking. Once these QA/QC checks are completed these data will be sent to the Global Telecommunication System (GTS) for further dissemination to our numerical modeling partners at USM as well as partners within the US Army Corps of Engineers, the US Navy, and NOAA.

III. General Performance Specifications

Deployed in the HRTA will be a HRSN that will provide continuous measurements of the atmosphere and underwater environments in Mississippi's coastal waters. These sensors shall continuously map these two environments and transmit the data to shore via cellular connections.

The HRSN shall have a customizable underwater network control center that include a sensor control system that will interface with the data transmission systems. This data logger and its computer system shall provide full control of all HRSN functions, measurements, and sensor

data in near real time. These include measurement system configurations, measurement parameters, data processing, data transmission, and scheduling. This control system shall send the sensor data to a small surface buoy for transmission via cellular connection.

The HSRN control center shall be mounted in a Trawl-resistant bottom mount enclosure (TRBM). The control center shall incorporate an upward looking high-frequency ADCP that will measure current profiles as a function of time and depth. This bottom mounted control system shall also use a broadband acoustic data collection system to collect data on ambient noise and marine mammal sounds and surface ship acoustic signatures. A tidal pressure sensor will also be part of the HRSN.

Systems to continuously measure atmospheric temperature, pressure, wind vectors, and GPS coordinates and directional wave spectra shall be fitted to a small moored surface buoy that is connected to the bottom mounted control center. All these data outputs and measurement frequencies shall be managed by the intelligent network control system and shall have the capability to transmit all the data using a cellular communication systems protocol.

On board batteries shall be mounted in both the surface buoy and the lower controller center. A Radar reflector and flashing light shall be part of the buoy's security systems. These security systems must meet USCG requirements /standards.

The network surface buoy shall use a mooring system that will be sufficiently robust to be operated and maintained in the field with minimal technical support. The buoy system shall have a modular and open design as to be customizable by USM for future use.

IV. Required Specifications

The following minimum specifications are required to ensure that the complete and integrated HRSN shall perform the tasks necessary to satisfy USM's project's objectives.

A. Bottom Mounted Network Central Control Center's Minimum Specifications

- The central network control system shall be mounted in a Trawl-resistant bottom mount enclosure (TRBM)
- All external connectors shall be underwater connectable
- The device shall include a remotely configurable power scheduling function
- The system shall support remote firmware updates and the ability to receive feature upgrades (e.g. Artificial Intelligence (AI) processing algorithms)
- The system shall have an autonomy period of at least two (2) months and offer a surface rechargeable port without the need to recover equipment or replace batteries.
- The system shall have a minimum of six (6) connections for cabled sensor nodes three (3) for temperature, three (3) for CTD/DO, one (1) connection a for tidal sensor, one (1) connection for data & power tether to the surface buoy, one (1) ADCP connection, and one (1) open connection for future use).

- The connectors shall be underwater mate-able
- The system shall support remotely configurable sampling regimes
- The system shall offer a remote web access monitoring and configuration
- The system shall be modular (i.e. can operate without all of its components)
- The system shall be scalable by allowing additional sensor nodes to daisy-chain
- The system shall be AI capable (i.e. the supplier must facilitate the integration of AI algorithms supplied by the client)
- The acoustic component of the system shall offer a user-definable threshold function to automatically start recording data. The data shall then be available for download on demand.
- Data transmission shall be user-configurable (e.g. 1 transmission per hour of selected data types)
- Data recording regime shall be user-configurable (e.g. configure sampling frequency and duration)
- The supplier shall favor reliable and common programming languages and protocols for easier future upgrades (e.g. Python)
- Each connection from the main controller (TRBM) shall support its own individual power management.
- The “communication buoy” shall be small enough to allow deployment from a small vessel (not larger than 1m diameter)
- The data and system functions shall be transmitted to shore via a cellular link
- The ADCP, Tide Sensor, and Hydrophone shall be mounted on or in the TRBM
- The vendor shall design mooring and deployment schemes with USM
- The vendor shall provide a mooring design for deployments in 5m of water depth.

B. Sensor systems

1. Mounted atop the HRSN surface data buoy shall be a weather system that will monitor the atmospheric conditions in and around the HRTA. The following table outlines the minimum measurements specifications for this weather station and its sensor systems.

Weather System Specifications	
Property	Description/Value
Housing protection class	IP65/IP66
Operating temperature	-30 ⁰ C to 60 ⁰ C
Storage temperature	-30 ⁰ C to 70 ⁰ C
Self-diagnostic	Separate messages to validate measurement status
Start-up	Automatic, < 5 seconds from power up to first output
Operating voltage	6 to 24 VDC
Maximum current	15 mA @ 5 VDC
Digital outputs	SDI-12, RS-232, RS-485, RS-422
Communication Protocols	SDI-12 v1.3, ASCII and NMEA 0183 v3.0
Barometric Pressure	

Property	Specifications
Range	800 ... 1100 hPa
Accuracy	+/- 1 hPa
Output resolution	0.1 hPa, 10 Pa, .001bar, 0.1 mmHg, 0.01Hg

Air Temperature	
Property	Specifications
Range	-40 °C to 60 °C
Accuracy	+/- 2 °C
Output resolution	0.1 °C

Wind Speed	
Property	Specifications
Range	0 to 62 m/s
Accuracy	+/- 3 m/s or 3%
Output resolution	0.1 m/s
Response time	.30 s
Available outputs	Average, Max., and Min.

Wind Direction	
Property	Specifications
Azimuthal range	0 to 359 ⁰
Accuracy	+/- 5 ⁰
Output resolution	1 ⁰
Available outputs	Average, Max., and Min.
Response time	0.30s

2. The following table outlines the minimum specifications for a buoy mounted directional wave sensor.

Directional Wave Sensor	
Property	Specifications
Output formats	Hex code defined output parameters, NMEA, Wave energy Spectra
Accuracy	Hs ±0.5cm, 0.2 - 20m, Resolution 0.001m Wave direction +/- 4 ⁰ , Period 1.5-20 sec Resolution .001sec
Accelerometer	±16g; Resolution 0.001m2 /sec
Gyroscope	±200°/sec Resolution 0.002°/sec
Available ports	RS232 Adjustable baud rate (2.4-115.2 kbps) USB Micro-B Micro-SD
Power requirements	150mW@12V 136mW@5V 5-30VDC
Operating temperature	Operating: -30C to 80C Storage: -40C to 85C

3. The following tables outlines the minimum required specifications for the CTD /DO sensor system that is mounted on the mooring nodes.

CTD+ Dissolved Oxygen Sensor Specifications
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Physical	Description/Value
Storage	240M readings
Communications	USB-C or RS -232/485
Clock drift	+/- 60 seconds /year
Depth Rating	200m
Sampling period	1 s to 24 hr.
Range	0-75 mS/cm
Accuracy	+/- .004 mS/cm
Conductivity	
Range	0-85mScm
Resolution	0.003 mS/cm
Stability	0.015 mS/cm per year
Temperature	
Range	-5 °C to 35 °C
Accuracy	+/- 0.002 °C
Resolution	+/- 0.00006 °C
Time constant	~ 1s
Stability	0.003°C/year
Dissolved Oxygen	
Calibrated range	0-500µM concentration, 0 – 120% saturation, 1.5°C to 23°C temperature, Window wiper included
Accuracy	±8µM or ±5%
Resolution	<1µM
Time constant	~30s
Sampling rates	24hr to 1Hz

4. The following table outlines the minimum required specifications for an upward looking high-frequency ADCP profiling system. This ADCP shall be mounted in the TRBM and measure the water current profiles as a function of time and water depth.

ADCP VERTICAL PROFILER	
Property	Specifications
Range	25 m
Frequency	1 MHz
Accuracy	1% of measured value +/-0.5 cm/sec
Resolution	0.2 cm/sec
Ping rate	1 Hz
Cell Size	0.3 to 4 m
Velocity Range	+/- 10 m/sec
Dynamic range	90 dB
Temperature	-4 to 35°C
Compass	Accuracy/resolution 2° / 0.1° for <20° tilt
Pressure	0-90m
Beam width	3.5°

Configuration	3 or 4 beams
Depth Rating	200m
Power	9-15 VDC
I/O	RS-232

5. The following table outlines the minimum required specifications for an acoustic hydrophone and recording system.

Hydrophone	
Property	Specifications
Operation depth	200 m
Bandwidth	10 Hz to 200 kHz
Sample rate	512
Power	24VDC
Dynamic Range	Greater than 115 dB
Sensitivity	Minimum -210 dBV re μ Pa
User definable functions	Threshold function to automatically start recording data. The data shall be available for download on demand.

6. The following table outlines the minimum specifications for a bottom mounted tidal sensor.

Tidal Sensor	
Property	Specifications
Pressure	Sampling rate: 24hr to 1s and 2, 4, 8 or 16Hz Duration: 1s to 24h, Interval: 1s to 24h
Power requirements	6 – 18V DC ~3mA
Communications	RS-232
Clock drift:	Less than ± 70 seconds/year
Data	Autonomous streaming
Baud Rate	1200 to 115k
Connector	MCBH-6MP
Size	< 240 mm diameter

7. The following table outlines the minimum specifications for mooring mounted temperature sensors.

Temperature Sensors	
Property	Specifications

Temperature Range	-5°C to 35°C
Power requirements	6 – 18V DC ~3mA
Accuracy	±0.002°C
Resolution	<0.00006°C
Time constant	~1 sec
Drift	<0.003°C/year
Communications	RS-232
Clock drift:	Less than ±70 seconds/year
Data	Autonomous streaming
Baud Rate	1200 to 115k
Connector	MCBH-6MP
Size	< 240 mm diameter

8. The following table outlines the minimum specifications for a 1m dia. surface buoy.

Surface Buoy	
Property	Specifications
Hull diameter	< 1 m dia.
Hull Height	< .6 m
Data well	Internal data well < .3 m dia. By .5 m deep
Weight	~145 lbs
Hull Material	Cross-linked polyethylene foam with polyurea coating & Kevlar reinforced to coat providing 450 lbs. of buoyancy
Hardware material	All buoy shall be made from 316 stainless steel
Mooring Attachments	3 topside lifting eyes, subsurface mooring eyes for single and two point moorings
Solar power	(3) 13-watt 12 VDC solar panels
Addition buoy requirements	The buoy shall support mounting of both topside and subsurface sensors. A top plate shall be pre-drilled for mounting a 1-3 nautical mile range LED beacon, weather station mast and other sensor supports. The plate shall accommodate passage of multiple sensor cables and connectors up to 1.5 inches in diameter.
	The buoy shall include a bottom stainless steel instrument cage with mooring eye for securing instrument clamps to accommodate water quality sondes and other subsurface sensors. The cage shall be removable for ease of maintenance and storage when not deployed.
	(3) 4-inch pipes, each with 4-inch NPT female threaded fitting, shall allow sensor pass through and accommodate deployment pipes below the buoy. Hatches shall cover the passages and conceal cables.

C. The following table show the minimum number of required sensors

Sensor	Number
Weather System	1
CTD	2
Dissolved Oxygen	2
ADCP Vertical Profiler	1
Hydrophone	1
Directional Wave Sensor	1
Tidal Sensor	1
Temperature Sensors	18

V. Cellular Telemetry System

The HRSN shall support telemetry using a cellular modem. The data logger shall report environmental measurements and system status through this cellular modem connection.

VI. System Management

All HRSN equipment, sonars, and communication equipment must be managed to avoid interference between systems.

VII. Software

- The vendor shall provide all the software that configures and controls the HRSN both on the buoy and on USM servers.
- The vendor shall provide Labview based on shore data display software in both a tabular and graphical format.

VIII. Training

The vendor shall provide 3-days of training on the operation, software, maintenance and troubleshooting of the HRSN. This must include mission planning and basic mission data analysis and display. This training will take place at the USM MRC facility located in Gulfport MS.

IX. Proof of Performance

The vendor shall have a proven record of the manufacturer of meteorological and oceanographic platforms, acoustic loggers, and the custom design of submerged scientific platform. The vendor shall have specialized in remote-access management systems for data integrity checks, data retrieval, power and function systems. The vendor needs to

provide references where an underwater multi-sensor integration system operated successfully within the last three (3) years.

The above requested information will assist USM in determining the bidder's capability of meeting these requirements.

X. Transportation of Equipment

The delivery arrangements and transportation costs shall be the vendor's responsibility. The HRSN system shall be delivered to USM campus located at the Marine Research Center 1030 30th Avenue, Gulfport, MS 39501. To meet program requirements the HRSN shall be delivered to USM within 15 to 17 weeks after Purchase Order is received.

XI. Warranty Services

At a minimum, the Contractor shall provide software/hardware warranty support for one (1) 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.

XII. 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. Interfacing instructions with connector pin outs
- D. Troubleshooting and maintenance procedures
- E. IPB (Isometric Parts Breakout) drawings showing how all parts, especially mechanical parts, relate to one another.
- F. Documentation of the various software packages including ICD documents.
- G. All sensor documentation and manuals.

XIII. U. S. Export Control Classification

Each bid must specify the export control classification (USML number or ECCN) of all products, systems, and/or separately classified components (ex. navigation systems, software, etc.). Bids that do not include export control information may be rejected.

XIV. Copies

At least one (1) signed original copy of the bid response MUST be provided, as well as 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.

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. USM Terms and Conditions

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.php>

The University of Southern Mississippi reserves the right to reject any and all bids.

The University of Southern Mississippi reserves the right to accept or reject optional line items included in the bid response.