

## Attachment B – Scope of Work

RFx.: 3000022434

Title:\*Site Visit\*Point Sur Drydock - LUMCON

### **Louisiana Universities Marine Consortium**

### **Oceanographic Research Vessel R/V POINT SUR**

#### **1. General Provisions**

1. The work consists preparing and performing a ABS Intermediate survey and shaft inspection of the vessel. The work may consist of furnishing all plant, labor, materials and equipment, except property specified to be furnished by Louisiana Universities Marine Consortium, hereafter referred to as LUMCON. All work shall be performed in strict accordance with these specifications and the applicable task descriptions for overhauling the Research Vessel POINT SUR. The individual task descriptions are detailed in section 2 (Work Description). The principal detentions of the POINT SUR are:

Length:	134'
Breadth:	32'
Draft	10'
Displacement:	539 LT Full Load, 450 LT approx. at haulout

The Research Vessel POINT SUR is a twin screw, with dual rudders. It is U.S. Flag, uninspected, and A.B.S. classed with load line.

2. All contracted work should be completed by February 25<sup>th</sup> 2024. Except for as authorized above, any delay in completion of task(s) beyond the contract term shall be the sole responsibility of the contractor. Any “stop work” ordered by the contractor or LUMCON’s representatives due to poor workmanship shall be the responsibility of the contractor.
3. Changes to these specifications or a specific task description(s) may be made only by the LUMCON Marine Superintendent, Port Captain or the POINT SUR’S Master. Any additional work requested by LUMCON shall be negotiated with the contractor, with terms agreed upon prior to commencement of the task, including the time required to complete the task.
4. The contractor shall appoint a coordinator to represent all trades and activities that the contractor is responsible for. This person shall act on behalf of the and as an agent of the contractor
5. In the performance of work under these specifications and applicable tasks the contractor shall remove any and all interferences required in order to perform

the work as specified in each task. Upon completion of the work specified in each task the contractor shall restore any interferences that may have been removed to their original conditions unless otherwise directed by LUMCON's Marine Superintendent, Port Captain or POINT SUR'S Master.

6. The contractor shall gas-free tanks and spaces as required and shall supply gas-free certificates. Contractor shall adhere to all applicable regulations with regard to entry and work in enclosed spaces
7. ALL MATERIALS FURNISHED BY THE CONTRACTOR SHALL BE IN ACCORDANCE WITH THE RULES OF THE AMERICAN BUREAU OF SHIPPING OR THE U.S. COAST GUARD. CERTIFICATIONS MAY BE REQUIRED FOR CERTAIN MATERIALS SUCH AS STEEL AND PIPE USED IN THE HULL. Workmanship shall conform to the current edition of the American Bureau of Shipping's "Rules of Building and Classing Steel Vessels". Welding shall be performed to meet the requirements of the ABS and U.S. Coast Guard. Fire Watches shall be provided by the contractor when deemed necessary by LUMCON. All testing of the welds for watertight integrity and other modifications are to be witnessed by the owner's representative and to the satisfaction of the attending ABS inspector.
8. All new disturbed surfaces shall be primed and coated to match surrounding surfaces. The contractor shall be responsible for protecting the vessel from overspray during sandblasting and painting operations on the POINT SUR. Any repair or damage or recoating of the vessel will be the responsibility of the contractor when caused by the actions of their employees or subcontractors.
9. The contractor, on completion of work each day, shall have all traffic and work areas cleaned up, loose gear stored out of traffic areas, manhole covers temporarily replaced and deck plates replaced where practical. ADDITIONALLY, THE CONTRACTOR SHALL PROTECT DECK COVERING AS NECESSARY TO PREVENT DAMAGE OR ABNORMAL WEAR.
10. LUMCON shall be permitted to berth and mess the crew onboard during the overhaul, to perform general maintenance, such as preparation and painting of interior and exterior spaces, and to overhaul interior and exterior machinery. This includes inspections and work on items below the water line not included in these specifications. Ship's crew shall not interfere with or retard the progress of the contractor's work. In cases where the work precludes the berthing of the crew on board they will be accommodated off the vessel.
11. Inspections and tests on work performed or complete shall be made at a time and in a manner satisfactory to the LUMCON Marine Superintendent, Port Captain, Master or representative. Machinery or equipment which has been overhauled or provided by the contractor shall be tested as required by LUMCON or its representative to ensure that the work has been properly accomplished.
12. LUMCON shall have the right to have work on ships equipment not included in these specifications performed by representatives of the manufacturer of the equipment.
13. The contractor shall indemnify, defend and hold harmless LUMCON, its officers and agents, against any and all claims, costs or liabilities, for any loss, damage,

injury, or loss of life, other than that attributable in whole or part to LUMCON's fault or negligence, caused by the actions of contractor or its officers, agents, or of any third party acting on behalf of or under the authorization from the contractor in the performance of this work.

14. All work will be completed utilizing the currently accepted rate structure not to exceed the price listed on each line of any purchase order resulting from this solicitation. This rate structure will be made available to the Marine Superintendent, Port Captain, or Master and agreed upon prior to the start of affected work. Any deviations from the standard rate structure must be approved prior to the start of affected work. The scope and details of each task will be agreed on before the start of work. Changes to scope and details of tasks will be approved by LUMCON or its representative. A weekly accounting or estimate of charges to date will be presented to the Marine Superintendent. Every effort will be made to complete the agreed upon work in a manner that conforms to the standard marine practices, is to the satisfaction of the attending ABS inspector where appropriate and is to the satisfaction of LUMCON or representative.
15. Change orders will be in writing. The attached specifications and estimate of costs will be used as the guidelines for scope of work. Each task will be approved separately before work is started. Disputes will be settled by negotiation to the extent possible. No liens will be placed on the Research Vessel POINT SUR and LUMCON. Billing and credit extension will be to LUMCON. All invoices for work completed shall be sent to Joe Malbrough, Marine Superintendent, Louisiana Universities Marine Consortium, 8124 Hwy 56 Chauvin La. 70344.

## 2. WORK DESCRIPTION

1. Drydock and Berthing COST: \_\_\_\_\_

Furnish labor, materials, and services to put vessel on dry-dock upon arrival. Furnish line handlers and tugs as necessary to dock and undock vessel. When all underwater repairs and inspections are complete and upon approval of owner's representative, undock vessel and provide dockside berthing.

NOTE: the vessel is equipped with the following bottom appendages

REFER TO DOCKING PLAN FOR LOCATIONS AND DIMENSIONS

- a) Keel coolers port and starboard between frames 43 and 49, three each side of centerline. Distance from centerline to inside edge of coolers is approximately 1, 3, and 11 feet on each side. The coolers are all approximately 15 inches wide. Four are 17 feet long and two are 22 feet long.
- b) One additional cooler on the port side between frames 42 and 50. Distance from the center line to the inside edge of this cooler is approximately 6.5 feet. This cooler is 24 inches wide by 24 feet long.
- c) Port and Starboard bilge keels from frame 25 to 49.

- d) Two sea chests between frames 38 and 39, approximately 15 inches from center line, one on each side. One seas chest between frames 27 and 28, approximately 5'6" from center line on the starboard side.
- e) Transducer void with several transducers between frames 24 and 29. One ADCP transducer between frames 27 and 28, from near center line to 28 inches to port of CL. Three transducer flush with bottom, 16 inches in diameter between frames 26 and 27. One is 4'11" to stbd of CL. One speed log transducer, 3 inches in diameter, flush with bottom between frames 25 and 26, 12 inches to stbd of CL. One 200kHz transducer, 3 inches in diameter, flush with the bottom between frames 28 and 29, 12 inches to port of CL.

A docking plan will be provided to the contractor by the owner showing the positions of all these items.

2. Water, Shore power, Disposal, Vessel Access COST: \_\_\_\_\_

Furnish labor, materials and equipment to provide the following services. Provisions for all services should be made as soon after the vessel is on dock as possible. Services should be provided for any periods alongside the dock in the water.

- a) 40 psi potable water supply
- b) 100 amp, 460 VAC 3ph, 60 Hz shore power
- c) Suitable garbage disposal container.
- d) Safe access onto the vessel while in dock

3. Hull Cleaning and Coating COST: \_\_\_\_\_

An underwater body inspection will take place by vessel Captain and local paint representative. A recommendation will be made based on the findings. Shipyard will be required to furnish labor, materials and equipment to accomplish the following in way of leaning and painting underwater body to the specifications. PAINT WILL BE OWNER SUPPLIED. SEA CHEST AND KEEL COOLERS SHALL BE INCLUDED AS UNDERWATER BODY FOR CLEANING AND PAINTING. The area from the keel to the deep load line (5'0" from main deck) is equal to approximately 5,084 sq. feet including skeg and rudders. Antifouling line has been raised above the load line aft of amidships approximately one foot.

- a) Provide and install suitable protective coverings over transducers, propellers, shafts and remove upon completion of painting
- b) Remove any fouling and/or loose flaking paint using high-pressure fresh water. Hand scrape as necessary on keel coolers, sea chest and other areas that are not adequately cleaned. Open for inspection, clean and coat per hull painting specs the sea chest.
- c) Sand sweep to remove loose paint and unfeather areas of anti-fouling.

- d) Remove all dust and spent abrasion from bottom of vessel
- e) In areas of damage, apply a coat of paint prior to applying bottom paint
- f) Apply one full coat of antifouling paint (provided by LUMCON) at 5 mils
- g) Contractor shall provide a qualified person to monitor humidity and dew point throughout the painting operation to ensure application in accordance with manufacturer's specification.
- h) Repaint all hull marking, including Hailing Port, Draft Marks (including draft marks on transom), and Load Line Markings. Load line Markings are to be verified before work begins and must be repainted in accordance with the Load line letters from ABS (available from LUMCON)

4. Hull Zincs

COST: \_\_\_\_\_

- a) Furnish labor, materials and equipment to renew all hull anodes, strap type bolt on anodes. 15 anodes at 24 lbs (6x12") and 7 at 12 lbs (3x12") are required. OWNER WILL PROVIDE ANODES. Remove Zincs either during water blasting or immediately afterwards and before any hull preparations or painting take place

The zinc hole patten is 9" x 6" center. Most studs are out of alignment enough that it is necessary to fit each zinc to its location. Matching the hole pattern from the replaced zinc to the next zinc is the best approach. The smaller zincs are for the keel coolers and the sea chest. Each sea chest has a standard 3x12 inch strap zinc and the keel coolers each have two zincs that have holes drilled through the zinc itself.

Care must be taken when removing zincs to minimize breaking off studs. Studs will be replaced where necessary. Protect the studs during painting in order to ensure good contact between the zinc and the studs.

5. Propellers and tail shafts

COST: \_\_\_\_\_

Furnish labor, material and equipment to service propellers, stern tube and tail shafts as specified below and in the following references. SHAFT SEALS WILL BE PROVIDED BY OWNER.

Reference

- a. RFM&A DWG no. 1575-4801 (o) (S43-4). Shafting and arrangement details
- b. Pay and Brink Instr. And Pars Book; Series PB 200s

- a) Inspect inner and outer stern tube seals for leaking and check propeller heads for signs of leaking
- b) Drain stern tubes. Remove starboard tail shaft and propellers to machine shop (Rudders must be removed first). Ensure that location and alignment of all couplings, flanges and connecting rods are recorded and marked for proper reinstallation. Ensure that bearing surfaces and shafts are not damaged or allowed to become fouled with dirt and sand blasting materials.
- c) Remove Propeller hubs, loosen each 6" cap screw in propeller hub. The hub cap screws are locked with hex Allen double set screw. The screw heads are protected and the cavity faired with red hand epoxy. The hub plug ½" hex head bolt is tapped for 1/8" hydraulic fitting. Inspect the inside of the propeller head; remove water and dirty grease as necessary. Remove propeller blades for repair and reinstall blades and hubs using owner furnished O-rings. Clean and polish all blades. See attached spec for propeller hub maintenance for further detail.
- d) Remove forward half of propeller hubs to expose keyway on each tailshaft. Conduct non-destructive testing for cracks as directed by ABS inspector and/or LUMCON Marine Superintendent.
- e) Reinstall propeller hubs and blades on the tail shafts. Use new o-rings provided by owner. Install new outer seal bearings surface and/or take cut on existing surface on lathe as directed by marine superintendent. Verify run out on bearing surface is within tolerances. Check run out on tail shaft.
- f) Remove fill plugs from the propeller heads. Refill heads with ESSO BEACON 2 grease (or equivalent). Grease will be furnished by owner.
- g) Take and record bearing clearances for inner and outer bearing surfaces on both shafts.
- h) Remove Starboard tail shaft and measure bearing clearances and inspect inner and outer bearings. If indicated by inspection, remove inner and outer shaft bearings and send to appropriate bearing shop for realignment. ABS should be present for this inspection.
- i) Reinstall shafts and propellers in stern tubes. Slip new outer seal on shaft in front of hubs before installing shafts in stern tube. Install outer seal to stern boss before making up couplings. Check pre-stress on outer seals per Marine Superintendent's instructions. Slip inner seals, clamping ring and O-rings on shafts before making up coupling and control rods. Make up control rods and coupling being sure to align clearance side of coupling properly. Check and record alignment of shaft before making secure. Install and align inner seals with run out and pre-stress within specifications contained in seal instructions.
- j) Re-fill stern tubes from oil on board. Allow twelve hours for this process.
- k) Test propellers for proper operation of controllable pitch and check seals for leaks.
- l) Reinstall rope guards with proper clearance from propeller hubs.

6. Rudder, stock, and tail shafts

COST: \_\_\_\_\_

Furnish labor, material and equipment to:

- a) Remove and lay in dock port and starboard rudders. This can be done prior to removing propellers and tail shafts.
- b) Measure and furnish owner and ABS upper and lower rudder stock clearances.
- c) Rebuild rudder stocks to ABS specifications
- d) Open and clean stuffing box for inspection by owner and ABS. After installation of tail shafts, re-install and re-pack rudders using new packing and re-install all glands seals, renewing all wasted or defective fasteners. Upper packing is ½" and lower packing is 7/16". Approximately 6 or 7 rings of packing are used in each packing gland.

7. Sea Valves

COST: \_\_\_\_\_

Furnish labor, materials, and equipment to remove, then clean and inspect the following Sea Valves. Upon approval of the Chief Engineer, re-install the Sea Valves renewing fasteners and gaskets where needed.

- a) ENGINE ROOM:
  - 1 – 6" Butterfly
  - 2 – 3" Butterfly
  - 3 – 1" Ball
  - 1 – 4" Butterfly
- b) TRANSDUCER VOID:
  - 1 – 1" Gate
  - 1 – 3" Gate

8. Sewage tank cleaning and inspection

COST: \_\_\_\_\_

Furnish labor, material (except paint and thinners) and equipment to:

- a) Open sewage tank, located between frames 39 & 42 on the center line. Access is through a manhole in the engine room. A second smaller tank is built in to the sewage tank and access is through a manhole inside the main sewage tank. Both manhole covers will be removed and re-installed at the completion of this task using new gaskets and fasteners. Covers will be cleaned, prepared, and painted before installation. The tanks will need to be cleaned and certified for personnel entry. An internal inspection will be required to determine if any metal will need to be replaced. After the completion of other work, the inside surfaces of the tank will be coated as necessary in accordance with specifications provided by the paint manufacturer's representative and LUMCON. Paint will be supplied by LUMCON. The total capacity of the sewage tank is approximately 1888 gallons and the approximate dimensions are 12' x 3.5' x 6'.

9. Engine Room Bilges

COST: \_\_\_\_\_

Furnish labor, materials, and equipment to:

- a) Clean engine room bilges. Remove deck plates from the engine room. Provide protective wrapping for main and auxiliary engines and for other machinery such as hydraulic pumps, water makers, and other equipment as directed. Using a pressure washing system, clean bilges of all grease, oil, loose paint, and sediment

10. Water Tanks

COST: \_\_\_\_\_

Furnish labor, material, and equipment to:

- a) Open and certify gas free for personnel entry in to potable water tank between frames 9 & 11 as directed by the Marine Superintendent or Captain. Tanks will be inspected.
- b) Open and certify gas free for personnel entry in to the #2 port and starboard wash water tanks between frames 11 & 18 as directed by Marine Superintendent or Captain. Tanks will be inspected.
- c) Open and certify gas free for personnel entry in to the #1 wash tank between frames 4 & 11 as directed by the Marine Superintendent or Captain. Tanks will be inspected.
- d) Open and certify gas free for personnel entry in to the forepeak ballast water as directed by the Marine Superintendent or the Captain. Tanks will be inspected.

11. Fuel Tanks

COST: \_\_\_\_\_

Furnish labor, material, and equipment to:

- a) Open and certify gas free for personnel entry to #3 port and starboard fuel tanks between frames 18 & 25 as directed by Marine Superintendent or the Captain. Tanks will be cleaned and inspected. Max capacity – 3806 gallons each.
- b) Open and certify gas free for personnel entry to #4 port and starboard fuel tanks between frames 29 & 38 as directed by Marine Superintendent or the Captain. Tanks will be cleaned. Max capacity – 3806 gallons each.
- c) Open and certify gas free for personnel entry to #5 port and starboard fuel tanks between frames 55 & 58 as directed by Marine Superintendent or the Captain. Tanks will be cleaned and inspected. Max capacity – 1704 gallons each.
- d) Open and certify gas free for personnel entry to fuel day tanks port and starboard fuel tanks between frames 52 & 55 as directed by Marine Superintendent or the Captain. Tanks will be cleaned and inspected. Max capacity – Port capacity = 1600 & Starboard = 1137.



- e) Open and certify gas free for personnel entry to dirty oil/slop tank between frames 42 & 43 as directed by Marine Superintendent or the Captain. Tank will be cleaned and inspected. Max capacity – 553 gallons.

12. Ballast Tanks

COST: \_\_\_\_\_

- a) Open and certify gas free for personnel entry in to Forepeak S.W. Ballast tank frames 4 - Forward as directed by the Marine Superintendent or Captain. Tanks will be inspected.

- b) Open and certify gas free for personnel entry in to No. 1 S.W. Ballast tank between frames 4 & 11 as directed by the Marine Superintendent or Captain. Tanks will be inspected.

- c) Open and certify gas free for personnel entry in to No. 6 Port and Starboard S.W. Ballast tank between frames 52 & 58 as directed by the Marine Superintendent or Captain. Tanks will be inspected.

13. Hydraulic Oil Tank

COST: \_\_\_\_\_

- a) Open and certify gas free for personnel entry to Hydraulic Oil tanks between frames 38 & 42 as directed by Marine Superintendent or the Captain. Tanks will be cleaned and inspected. Max capacity – 1211 gallons.

14. Dirty Oil Slop Tank

COST: \_\_\_\_\_

- a) Open and certify gas free for personnel entry to Dirty Oil Slop tank between frames 42 & 43 as directed by Marine Superintendent or the Captain. Tank will be cleaned and inspected. Max capacity – 553 gallons each.

15. Gear Oil Tank

COST: \_\_\_\_\_

- a) Open and certify gas free for personnel entry to Gear Oil tank between frames 52 & 55 as directed by Marine Superintendent or the Captain. Tank will be cleaned and inspected. Max capacity – 440 gallons.

16. Stern Tube Oil Tank

COST: \_\_\_\_\_

- a) Open and certify gas free for personnel entry to Stern Tube Oil tank between frames 52 & 55 as directed by Marine Superintendent or the Captain. Tanks will be cleaned and inspected. Max capacity – 478 gallons.

17. Lube Oil Tank

COST: \_\_\_\_\_

a) Open and certify gas free for personnel entry to Lube Oil tank between frames 52 & 55 as directed by Marine Superintendent or the Captain. Tanks will be cleaned and inspected. Max capacity – 859 gallons.

18. Emulsifier Tank

COST: \_\_\_\_\_

a) Open and certify gas free for personnel entry to Emulsifier tanks between frames 52 & 55 as directed by Marine Superintendent or the Captain. Tanks will be cleaned and inspected. Max capacity – 380 gallons.

19. Remove and Replace wasted steel on top of stack

COST: \_\_\_\_\_

a) Furnish labor, Material and equipment to remove and replace wasted steel around the port fwd. exhaust pipe at top of stack. Area is approximately 30"X30" of ¼" plate. Prime and repaint area with two coats of International Interthane 990. Paint and Primer provided by LUMCON.

20. Replace Deck Boards

COST: \_\_\_\_\_

Remove 85 deck boards ranging from 3' to 14' on main deck, blast, repaint below deck board area 20'X18', and replace with new deck boards. Furnish labor, and equipment to accomplish the following in way of leaning and painting lower Black hull section to the specifications.

- a) Remove all deck boards
- b) Sand sweep or power tool entire area
- c) Remove all dust and spent abrasion from hull of vessel
- d) Apply one coat of Dimentcoat and two coats of Americoat 240
- e) Replace deckboards with new deck boards provided by LUMCON
- f) Deckboard are to be fastened with existing deck studs and bolts.

21. Repair Hull on Starboard side of vessel

COST: \_\_\_\_\_

a) Furnish labor, Material and equipment to remove and replace a patch around the starboard forward side of hull, estimated to be between frames 12 & 14. Work needs to be ABS approved. Prime and repaint area with two coats of International Interthane 990. Paint and Primer provided by LUMCON. Replace back to the original form any insulation and interior materials that had to be removed for this repair.

22. Weld a bead Labels on deck at fills COST: \_\_\_\_\_

a) Furnish labor, Material and equipment to weld labels on back deck at fills. Prime and repaint area with two coats of International Interthane 990. Paint and Primer provided by LUMCON.

23. Replace/repair semi-flush multi-bolt manhole on sewage and waste oil tanks COST: \_\_\_\_\_

a) Furnish labor, Material and equipment to remove manhole covers on top of sewage and waste oil tank. Prime and repaint area with two coats of International Interthane 990. Paint and Primer provided by LUMCON.

24. Inspect Piping from sea chest to RO water maker and repair/replace if needed COST: \_\_\_\_\_

a) Furnish labor, Material and equipment to Sand sweep or power tool area of piping from sea chest (10") to RO system, inspect and if needed remove and replace wasted steel and pipe. Prime and repaint area with 2 coats of International Interthane 990. Paint and Primer provided by LUMCON.

25. Remove and replace #6 ballast valves inspect pipe for blockage COST: \_\_\_\_\_

a) Furnish labor, Material and equipment to remove and replace two #6 ballast valves and inspect pipe for any blockage. Clear any blockage in pipe. LUMCON will supply valves.

26. Sandblast and repaint legs of A-frame COST: \_\_\_\_\_

a) Furnish labor, Material and equipment to blast legs of A-frame from deck up 14'. Prime and repaint both legs from deck to cross member at top A-frame (apx 21' tall) with 2 coats of International Interthane 990. Paint and Primer provided by LUMCON.

27. Change out 16' of PVC 2" piping from sewage tank to sewage pump with a 16' steel 2" piping COST: \_\_\_\_\_

a) Furnish labor, Material and equipment to remove and replace PVC piping from sewage tank to sewage pump and diaphragm pump with steel. Suction side only. Prime and repaint area with two coats of International Interthane 990. Paint and Primer provided by LUMCON.

28. Remove insulation and exhaust wrap on all 4 engine exhausts, allow for inspection.  
LUMCON will reinstall COST: \_\_\_\_\_

a) Furnish labor, Material and equipment to remove insulation and exhaust wrap at engines on four sections of exhaust pipes. Pipes are 12" diameter. Inspect for exhaust leaks. LUMCON will hire contractor to reinstall insulation.

29. Replace water-cooling head tank in switch panel room COST: \_\_\_\_\_

a) Furnish labor, Material and equipment to repair broken fill on the water-cooling head tanks for mains and gens with similar tank. There are two tanks 32" x 12" x 36".

30. Remove and replace hydraulic rams on A-frame COST: \_\_\_\_\_

a) Furnish labor, Material and equipment to remove and replace Hydraulic rams on A-frame. Rams will be placed on pallets and given to LUMCON to be sent off to be refurbished or replaced

31. Repair through-deck pipe and decking in potable water pump room COST: \_\_\_\_\_

a) Furnish labor, Material and equipment to remove and replace wasted steel pipe in potable water pump room. 2" piping 3' long. Prime and repaint area with two coats of International Interthane 990. Paint and Primer provided by LUMCON.

32. Remove, provide for inspection and replace all valves on fuel manifold and ballast manifold COST: \_\_\_\_\_

a) Furnish labor, Material and equipment to remove, allow for inspection and replace 14 valves on fuel manifold and 11 valves on ballast water manifold. All valves are 2". Replacement valves will be provided by LUMCON.

33. Remove and Replace overboard fittings on the outflow side of saltwater cooling pump COST: \_\_\_\_\_

a) Furnish labor, Material and equipment to remove and replace fittings on outflow side of saltwater ac cooling pump. Prime and repaint area with two coats of International Interthane 990. Paint and Primer provided by LUMCON.