RANGER CLASS SCORE SHEET
Ocean Observing Systems

SCHOOL NAME and # AS IT APPEARS ON THE OFFICIAL LIST: _____

Company CEO: _____ **Mission attempt #:** _____

Mission station officials: _____

Set-Up and Safety Check (up to 10 points total)
- ❑ Company presents signed safety inspection sheet. (5 points)
- ❑ Vehicle and control system present no safety hazards. (up to 5 points)
  - o All power cords, power bars, pressurized cylinders, etc. are secured.
  - o No hazardous materials are leaking onto the pool deck.
  - o Vehicle is hand-launched by team members in a safe manner.
  - o Vehicle is in the water at the end of the 5-minute set-up period.

Mission official's notes: _____

Company is safe and ready for the mission: _____ (official's initials) _____ points (out of 10)

Note: An official's decision to disqualify a company due to safety concerns is final. If there is a safety concern, please contact the lead official or competition coordinator.

Organizational and Operational Effectiveness (up to 10 points total)
- Organization
  - o Chain of command evident
  - o Roles clear and executed well
- Task Plan
  - o Task plan is well thought out to maximize score
  - o Alternate plans available
  - o All team members are aware of the plan
- Time Management
  - o Awareness of time
  - o Adjusting timeline to adapt to situations
- Team Cooperation
  - o Composure under pressure
  - o Supportive of each other

Mission official's notes: _____

Company is effectively organized to undertake the mission:

_____ (official's initials) _____ points (out of 10)

<u>Fuses</u>
If a vehicle blows the MATE power supply in-line fuse, the company is allowed one spare. If the vehicle blows the second MATE fuse, the mission performance period is over. The company will receive points for the mission tasks that they have completed up to that point but will not receive a time bonus score.

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Mission task scoring breakdown:

Task #1: Complete a primary node and install a scientific instrument (120 points)
Task #2: Design and install a temperature sensor and measure temperature (75 points)
Task #3: Replace an ADCP on a water column mooring platform (80 points)
Task #4: Locate and remove biofouling from structures and instruments (25 points)

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Task #1: Complete a primary node and install a scientific instrument (120 points)

<u>Important notes:</u>
Companies may alternate between task #1 and other tasks, but the steps of task #1 must be completed in order, with the following exception: companies may remove the OBS cable connector from the elevator at any point after pulling the pin to release the OBS and opening the door of the BIA. Companies may skip any step of task #1, but will not receive points if they complete that step at a later time.

Scoring – 120 points

- **5 points –** transferring the SIA to the seafloor   _____

- **20 points –** installing the SIA so that it rests completely within the BIA   _____

- **5 points –** removing the CTA from the seafloor   _____

- **20 points –** inserting the CTA into the bulkhead connector on the BIA   _____

- **10 points –** pulling the pin to release the OBS from the elevator   _____

- **5 points –** removing the OBS from the elevator   _____

- **20 points –** deploying the OBS in the designated location on the seafloor   _____

- **10 points –** opening the door of the BIA   _____

- **5 points –** removing the OBS connector from the elevator   _____

- **20 points –** inserting the OBS connector into the bulkhead connector   _____

TOTAL POINTS FOR TASK #1 _____

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Task #2: Design and install a temperature sensor and measure temperature (75 points)

Scoring – 75 points

- **15 points –** designing and constructing a temperature sensor prior to the competition _____

- **10 points –** installing the temperature sensor over the vent opening   _____

Measuring temperature over time:
- **up to 20 points –** initial temperature measurement   _____
  - **20 points** - Initial temperature measurement is within 2°C of benchmark
  - **10 points** - Initial temperature measurement is within 4°C of benchmark
  - **5 points** - Initial temperature measurement is within 5°C of benchmark

- **up to 20 points –** temperature measurement over time
    - ○ **5 points** – temperature measurement at 1.5 minutes   _____
    - ○ **5 points** – temperature measurement at 3 minutes   _____
    - ○ **5 points** – temperature measurement at 4.5 minutes   _____
    - ○ **5 points** – temperature measurement at 6 minutes   _____

- **10 points –** graphing all five data points (temperature versus time)   _____

TOTAL POINTS FOR TASK #2 _____

Task #3: Replace an ADCP on a water column mooring platform (80 points)

Important notes:
Companies may alternate between task #3 and other tasks, but the steps of task #3 must be completed in order listed above. Companies may skip any step of task #3, but will not receive points if they complete that step at a later time. Companies will receive a 5 point penalty for leaving the "old" ADCP on the seafloor (see the penalty point section of the scoring summary below).

Scoring – 80 points

- **10 points –** disconnecting power to the platform   _____

- **10 points –** turning the handle to unlock the hatch   _____

- **10 points –** opening the hatch   _____

- **10 points –** removing the ADCP from the mooring platform   _____

- **10 points –** installing the new ADCP into the mooring platform   _____

- **10 points –** closing the hatch   _____

- **10 points –** turning the handle to lock the hatch   _____

- **10 points –** reconnecting power to the platform   _____

TOTAL POINTS FOR TASK #3 _____

Task #4: Locate and remove biofouling from structures and instruments (25 points)

Scoring – 25 points

up to 25 points – locate five areas of biofouling and removing all biofouling organisms   _____
    - ○   5 points for each area with all biofouling removed.

TOTAL POINTS FOR TASK #4 _____

See below for SCORING SUMMARY WORKSHEET

SAFETY INSPECTION				
Signed safety inspection sheet	0			5
Vehicle and control system present no hazards	0		3	5
ORGANIZATION				
Company is effectively organized to undertake the mission	0		5	10
Safety inspection and organization point total:				
Task #1: Complete a primary node and install a scientific instrument.				
Transferring the SIA to the seafloor	0			5
Installing the SIA so that it rests completely within the BIA	0			20
Removing the CTA from the seafloor	0			5
Inserting the CTA into the bulkhead connector on the BIA	0			20
Pulling the pin to release the OBS from the elevator	0			10
Removing the OBS from the elevator	0			5
Deploying the OBS in the designated location on the seafloor	0			20
Opening the door of the BIA	0			10
Removing the OBS connector from the elevator	0			5
Inserting the OBS connector into the bulkhead connector	0			20
Task #1 point total:				
Task #2: Design and install a temperature sensor and measure temperature				
Designing and constructing a temperature sensor prior to the competition	0			15
Installing the temperature sensor over the vent opening	0			10
Measuring temperature over time				
Initial temperature measurement within 2°C, 4°C, or 5°C of benchmark	0 5		10	20
Temperature measurements at 1.5, 3, 4.5 and 6 minutes.	0 5	10	15	20
Graphing all five data points (temperature versus time)	0			10
Task #2 point total:				
Task #3: Replace an ADCP on a water column mooring platform				
Disconnecting power to the platform	0			10
Turning the handle to unlock the hatch	0			10
Opening the hatch	0			10
Removing the ADCP from the mooring platform	0			10
Installing the new ADCP into the mooring platform	0			10
Closing the hatch	0			10
Turning the handle to lock the hatch	0			10
Reconnecting power to the platform	0			10
Task #3 point total:				
Task #4: Locate and remove biofouling from structures and instruments				
Locate five areas of biofouling and removing all biofouling organisms				
	0 5 10 15 20 25			
Task #4 point total:				

PENALTY POINT DEDUCTIONS	
*Illegally pulling tether _____ infractions X - 5	
*Illegal communication _____ infractions X - 5	
**Diver assistance _____ infractions X - 5	
*** Leaving debris in the pool _____ infractions X - 5	
Exceeded 5-minute demobilization period _____ minutes X - 1 =	
TIME BONUS	
1 point for every minute and 0.01 point for every second under 15 minutes	
Duration of Mission: _____ Minutes under 15 remaining: _____ X 1 point = _____ Seconds remaining: _____ X 0.01 point = _____	
Time bonus	
TOTAL MISSION SCORE	

* Issue a warning for the first infraction. Begin deducting points AFTER the first infraction. Companies may pull on the temperature sensor wire as desired. Companies may not pull on their temperature sensor wire to move, manipulate, turn, or retrieve their ROV.

**Diver assistance is provided ONLY AFTER a company requests it. The only exception is once the mission time has ended. At this time the divers will assist the ROV to the surface as part of the company's 5-minute demobilization period. Companies WILL receive penalty points for diver assistance during the demobilization period.

*** Companies that leave debris (e.g. parts of their ROV, including weights and flotation) in the pool such that a diver must retrieve the debris will also receive penalty points. The old ADCP retrieved from the mooring platform is considered debris and may not be left on the seafloor. Other mission props are NOT considered debris.

<mark>**Mission official's initials: _____   Company CEO's initials: _____**</mark>