

Research Vessel Savannah

Cruise Manual



The University of Georgia[®]
Skidaway Institute
of Oceanography

SKIDAWAY INSTITUTE OF OCEANOGRAPHY

**R/V SAVANNAH
CRUISE PLANNING MANUAL**

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SECTION I: SHIP AND SHIP'S EQUIPMENT

General Vessel Specifications

Ship name:	R/V <i>Savannah</i>
Owner:	Board of Regents of the University Systems of Georgia
Operator:	Skidaway Institute of Oceanography
Year built:	2001
Maximum Capacity:	36 people (based on ABS stability letter)
Builder/location:	Washburn & Doughty, East Boothbay, Maine
Hull Number:	72
Length overall:	103.6 feet
Length in water:	96 feet
Beam:	27 feet
Navigational draft:	8.5 feet
Full Load displacement:	357 long tons
Lightship displacement:	244 long tons
International Tonnage:	278 GT
US Regulatory Tonnage:	244 GRT
Operated as:	Oceanographic Research Vessel
Class:	ABS Load Line
USCG Inspected:	NO
USCG Documentation:	YES
IMO:	8992651
MMSI:	303117000

Propulsion

Main Engines: Twin 470 HP Caterpillar C18 Diesel Engines
Bow Thruster: 102 HP (75 kW) 20" DTG Electric Bow Thruster

Range, Speed, and Endurance

Cruise Speed:	9.5 kts.
Range at Cruise Speed:	2160 nm
Endurance:	26 days of continuous duty

Electrical Service

The R/V *Savannah* is equipped with two 118 kW - 208 V - 3 PH - 60 HZ output diesel-driven Caterpillar model 4.4C generators. Uninterrupted power receptacles (UPS) are available for scientific use in both the dry and wet labs. Ship users are expected to discuss UPS power needs

with the Marine Technician or Engineer if UPS power needs will exceed 20A per circuit. On the back deck, there are three (3) 30A 3P, one (1) 60A 3P, and multiple 20A 1P receptacles for science equipment. Any significant deck or interior power supply needs should be discussed with the Marine Superintendent and/or Marine Technician well in advance of the cruise.

Seawater

Two clean uncontaminated seawater supply outlets (3/4") are located on the starboard aft deck area near the J-Frame and one spigot in the wet lab. This UCSW supply is taken from a thru-hull intake 2.3m below the water line in the forward machinery space and is pumped by either a centrifugal or diaphragm pump. Seawater can also be collected at specified depths using 8L Niskin water bottles attached the ship's CTD (see more on CTD below).

Fresh Potable Water

The ship holds 4,282 gallons of fresh water and is capable of producing 900 gallons of potable water per day via a reverse osmosis water maker. For science needs, a fresh water sink is located in both the dry and wet labs. In addition, fresh water is located on the main deck. Despite the ship's ability to make potable water and the large tank capacities it is required that science and ship personnel conserve water as much as possible. This includes taking "sea showers" and limited fresh water deck use.

Compressed Air

Compressed air is available on the aft deck. Maximum pressure is 175 psi with the ability to regulate the max/min pressure settings as requested.

Crane

The ship is equipped with a Palfinger Marine type PK 23500 ME S2.5S marine grade crane used to primarily load/unload the vessel at the dock, re-position deck gear, and launch the RHIB while at sea. The crane is driven by a Hawboldt Industries Hydraulic Power Unit.

Specifications:

Installed R/V *Savannah*: 06/10/08

Load Capacity: 5,600kg (12,346 lbs.) max, 960kg (2,116 lbs.) at full extension

Max. outreach: 16.7 m

Slewing angle: 400 degrees

Winch: Argani Verricelli

Type: S 2.5/R

Code: 9015368

Nominal line pull: 22 kn.

Weight: 2,500 kg.

Wire rope: 12 mm
Length: 49 m
Capacity: 4,610 lbs. – 3rd wrap
Line speed: 36 m/min. @ 3rd wrap

A-Frame

Stern mounted with 11' reach at 5,530 lbs.
System Safe Working Load: 5,320 lbs. (FS=5.0)
Vertical Clearance: 18'8" (from pad-eye with a-frame center over deck)
Horizontal Clearance: 13'8"
Reach in from transom: 10' 9"

J-Frame

Starboard Side mount with 7'5" reach at 2,000 lbs.
System Safe Working Load: 2,000 lbs. (FS=5.0)
Vertical Clearance: 14'8" (from pad-eye with a-frame center over deck)
Horizontal Clearance: 9'3"
Reach in from transom: 3' 6"

CTD Winch #1

Markey - Type COM-7-H-1 Compact CTD Winch
Drum Capacity: 1,500 m of 0.322" diameter cable
Line Pull – 3,729 lbs.
Speed - 124 ft/min
Winch Weight (without cable) – 1,100 lbs.

CTD Winch #2

Markey - Type COM-7-H-1 Compact CTD Winch
Drum Capacity: 1,500 m of 0.322" diameter cable
Line Pull – 3,729 lbs.
Speed - 124 ft/min
Winch Weight (without cable) – 1,100 lbs.

Trawl Winch

Hawboldt SPR-2048 Multipurpose Winch
Trawl Wire Drum Capacity: 1,500 m of ½” 6x26 wire rope
EM Cable Drum Capacity: 3,000 m of 0.322” EM cable
Full Drum Pull = 8,215 lbs.
Max speed = 40 m/min

Work Boat

A 13’ AB RHIB (rigid hull inflatable boat) with a Tohatsu 4-stroke 30 hp outboard motor is carried at all times and is the designated work and rescue boat. The boat has a capacity of 7 persons.

Navigation

The ship utilizes the following electronic navigation equipment:

- Trimble BX992 – Dual head DGPS
- Hemisphere – R131 Marine\GIS\Survey DGPS
- Furuno DGPS Navigator – Model GP-90
- Furuno FR8255 X-band 25 KW
- Furuno Marine Radar/ARPA Model- 2127-BB 25 KW
- SIMRAD Autopilot AP-70
- Yokogawa CMZ900S Gyrocompass
- Furuno GP-170 DGPS
- Furuno GPS Compass – Model SC-130
- Furuno Color Video Sounder – Model FCV-1150, 3 KW transducer 38/150kHz
- Furuno Color Video Sounder – Model FCV-588 - 50/200 kHz (wheelhouse)
- Furuno Color Video Sounder – Model FCV-800 (located in dry lab) - 50/200 kHz
- Furuno AIS Transponder – Model FA-170
- Timezero Professional navigation software – V5

Communication Equipment

- Starshield satellite – Primary data/voice
- Iridium Certus Intellian C700 – Secondary data/voice
- ICOM VHF Marine Radio - IC-M304
- Furuno FM8900S VHF Radiotelephone
- Furuno VHF FM-4000
- Furuno LH-5000 loud hailer

General Capacities

Diesel fuel	10,496 gallons
Freshwater	4,283 gallons
Wastewater	500 gallons
Ballast	21,508 gallons

General Deck Arrangement

The ship general arrangement includes a lower deck, main deck, O1 deck, and pilot house. Deck utilization for science purposes is described below.

Lower Deck - Science and ship crew cabins, toilets (n=2), and showers (n=2).

Main Deck – Wet and Dry Labs for science, galley, conference, mess rooms and toilet.

O1 Deck - Chief Scientist cabin, toilet and shower.

Pilot House – Typically used for Chief Scientist and Crew discussions and as an observation deck.

Deck arrangement drawings and main tie down deck socket drawing can be found in [Appendix 10](#) and [11](#), respectively.

Scientific Lab Space

A dry and wet lab is available for scientific experiments, bench space, storage, etc. On request, a radioisotope van can be placed on the main deck. Below are specifications for each area.

Dry Laboratory – 308 sq. ft.

Located on the ship's port side

Serves as ship's dedicated instrumentation room and repair space

Ship's Scientific Computer System (SCS) is located in the forward section

Laboratory shelving and bench space available

Bench plotting table for scientific use

Air conditioned and heated

120V UPS receptacles, in addition to unprotected power supplies

Fresh water sink

Wet Laboratory – 158 sq. ft.

Located on the ship's starboard side

Laboratory shelving and bench space available

Mini-freezer (-20C) 5.0cf (33.5"x21.75"x24.5")

Mini-refrigerator 7.0cf (34"x24"x24")

120V UPS receptacles, in addition to unprotected power supplies

Fresh water sink

Clean (uncontaminated) seawater supply available

Fume hood

Radioisotope Van

UNOLS 10' and 20' radioisotope vans are available from the UNOLS East Coast Van Pool upon request. Intended primarily for radioisotope work, the van may also be used for other activities.

All van requests should be made well in advance (> 6 months) of the cruise and included in the UNOLS ship-time-request system (see Section III: Pre-Cruise Planning). For NSF funded cruises, the van is provided at no additional cost. All non-NSF users will be charged a daily rate for the van in addition to the contracted day rate. The van layout can be found in [Appendix 5](#).

SECTION II: SCIENTIFIC EQUIPMENT

Shipboard Data Acquisition System

The R/V *Savannah* collects and displays atmospheric, sea surface, and navigational data using the NOAA developed Shipboard Computer System (SCS Version 4.6) software. These data are saved to individual sensor files every 6 seconds. Custom events can be created to capture time specific data records. The ship's Marine Technician will build an event to meet the science objectives at the request of the Chief Scientist. Real-time data displays can be found on monitors located in the dry and wet labs. Following each cruise SCS data is saved to a flash drive and distributed to the Chief Scientist.

Parameters routinely logged at 6 second intervals throughout the cruise include:

1. Date/time (GMT)
2. Ship latitude
3. Ship longitude
4. Ship speed over ground
5. Ship course over ground
6. Gyro heading
7. True Depth
8. True wind speed and direction from both port and starboard wind monitors
9. Air temperature
10. Barometric pressure
11. Relative humidity
12. Sea surface temperature, conductivity, salinity, and fluorescence

Flow-through sensors available upon request:

1. CO₂
2. pH
3. Backscatter (412nm, 532nm, 676nm)
4. Backscatter (440nm, 595nm, 700nm)
5. Backscatter (470nm, 630nm, 715nm)
6. C-Star- 25cm
7. ACS- Spectral Absorption and Attenuation
8. MiniTDGP- Dissolved Gas
9. Oxygen Optode
10. SUNA V2, Nitrate
11. LISST200x- Particle Size Analyzer

CORIOLIX

The RV *Savannah* utilizes the Cruise Observation Real-Time Interface for Live Information Exchange (CORIOLIX) to provide real-time access to underway data. SCS continuously

transmits data streams to CORIOLIX, allowing users to monitor parameters and create custom plots. CORIOLIX can be accessed through a web-based interface from the ship or shoreside.

For users without a personal laptop, a dedicated computer is available in the wet lab, providing direct access to CORIOLIX.

<https://coriolix.savannah.skiio.uga.edu/>

Conductivity, Temperature, and Depth Profiler (CTD)

A CTD profiler consisting of a water carousel (SBE 32) and datalogger (SBE 9) is available for vertical water column profiles and to collect water samples at discrete depths up to 1,500 meters. Water samples can be collected from 8L Niskin water bottles (n=11) in real-time using the deck box.

The standard carousel sensor configuration follows:

1. Pressure
2. Temperature (x2)
3. Conductivity/Salinity (x2)
4. Chlorophyll fluorometer (CHL)
5. Color dissolved organic matter fluorometer (CDOM)
6. Photosynthetic Active Radiation (PAR)
7. Backscatter (open ocean)
8. Dissolved oxygen

Auxiliary sensors available upon request:

1. pH
2. Transmissometer, 10 cm or 25cm pathlength
3. ISUS Nitrate Sensor

ADCP

Current direction and magnitude are collected and logged to file using either a T-RDI's 300 kHz or 600kHz workhorse acoustic doppler current profiler (ADCP) mounted in the ship's well (2.5 m below the water line). All ADCP data is acquired and quality controlled using the NSF supported University of Hawaii Data Acquisition System and CODAS processing.

Sub-bottom Profiler

Sub-bottom data is collected using a Knudsen 3260 Chirp Echosounder. The Echosounder is configured for 3.5 kHz and 12 kHz operations. This system has adjustable pulse lengths (up to 64ms), that allows the echosounder to maintain optimal bottom detection and resolution. Data is collected and viewed using the Knudsen SounderSuite Windows application software.

Shipboard Computers

A computer rack in the dry lab contains three servers that run the SCS, ADCP, and CTD software packages. All of these computers are managed by the Marine Technician. Permission to use these computers must be given by the Marine Technician prior to use.

Shared-Use Inventory

A list of the shared-use equipment can be found in [Appendix 6](#). This equipment may be provided to any ship user per request and is included in the ship's day rate.

SECTION III: PRE-CRUISE PLANNING

Contacts

Marine Superintendent
John Bichy – john.bichy@skio.uga.edu
912.598.2456

Captain
Trevor (TJ) Dodge – trevor.dodge@skio.uga.edu

Senior Marine Technician
Morgan Hudgins – morgan.hudgins@skio.uga.edu
252.571.1596

Shipping Address

Skidaway Institute of Oceanography
10 Ocean Science Circle
Savannah, GA 31411
ATTN: R/V Savannah

Webpages

R/V *Savannah* - <http://www.skio.uga.edu/marine-ops-2/rv-savannah-2/>

UGA/SKIO - <http://www.skio.uga.edu/>

Scheduling / Daily Rate

To schedule and discuss a charter agreement for the R/V *Savannah* please contact the SkIO Marine Superintendent. All ship users must submit a ship time request on the UNOLS MFP website (<https://www.mfp.us/>). Ideally, ship time requests are submitted by April 1 for a research project planned for the following calendar year. The ship day rate is negotiated each year with NSF. Please contact the Marine Superintendent for the current ship day rate. The full day rate provides for a standard crew of 6, a marine technician, food, fuel, any local shared-use equipment, and accommodations for up to 16 science personnel. The ship user is charged for operational days (transit and at sea for science days). A home port load/unload charge rate is required if significant crew involvement is needed. Any load/unload outside the vessel's home port is considered an operational day and charged at the ship's full day rate. All weather days that result in a loss of science operational days will be charged to the project. If a day is lost at sea due to ship mechanical failure the day will not be charged to the project.

Cruise Plan

A pre-cruise planning form and cruise manifest must be completed and received by the Marine Superintendent a minimum of **15 days in advance** of the cruise. Please contact the Marine Superintendent for these forms or visit the R/V *Savannah* webpage to download. These documents are important to ensure the ship, its supplied scientific equipment, and personnel are available and ready for your cruise.

Personnel

All cruise personnel who are not explicitly members of the ship's crew or an assigned SkIO Marine Technician are considered members of the scientific party and, as such, under the direction of the Chief Scientist. The Chief Scientist has the authority to determine the makeup of the science party and the responsibility to assure compliance with institution policy. In general minors are not permitted on the vessel. The vessel minor policy can be found in [Appendix 8](#).

Clearance Forms

Clearance forms and medical information will be required of all scientific party members. A copy of the SkIO Release and Liability Waiver form can be found in [Appendix 1](#).

Medical Information

The ship carries a full locker of medical supplies and equipment for emergency use under the direction of the Captain. The ship has access to shore based medical support from George Washington University Medical Faculty Associates, which will provide advice in a medical emergency via satellite or other communications methods with the MPIC. Individuals are responsible for discussing any known medical conditions with the Chief Scientist. The Chief Scientist and Captain will judge the liability any particular medical condition poses to themselves and the scientific mission. Individuals requiring medication must bring an adequate supply of required medications. Those with a medical condition or on prescription drugs should note the condition and medications on the Medical Information Form ([Appendix 2](#)). This information will be used only in case of emergency. In the case of serious injury or medical emergency, scientific work will end at the direction of the Captain. The ship will proceed to evacuate the patient to the nearest competent medical facility.

Scientific Crew Berthing

The R/V *Savannah* has 16 bunks for scientific personnel. The First Mate is responsible for assigning berthing arrangements. There is no steward service. Scientists are responsible for keeping their quarters clean and orderly. Clean sheets, pillowcases, and towels are provided at the start of each cruise. Upon completion of the cruise, the departing scientists shall give their

cabin a thorough cleaning and return all used sheets, towels, and pillowcases to laundry bags at the foot of the lower deck staircase.

Loading

Ship crew members can be made available to assist with loading and unloading. A forklift operator (10,000 lbs. capacity) and crane operator can also be made available. Per new UNOLS policy in 2018, a daily load/unload rate may be utilized for loading and unloading if significant ship crew are required to assist. The scientific party is responsible for securing deck and lab equipment and supplies for sea. The ship crew will assist with heavy deck arrangements to safely stabilize the vessel. A limited number of straps and chain binders are available per request. Any loading and unloading away from the vessel's homeport of Savannah, Ga needs to be arranged with the ship's Marine Superintendent well in advance of the cruise. Any dockage fees will be charged to the project.

Equipment Insurance

Insurance coverage is only provided for equipment owned by SkIO and personnel employed by SkIO. Please check with your home institution on their policy regarding insuring equipment and personnel while in use at sea.

Special Operations

The operations identified below should be identified in the cruise plan and should be coordinated with the Marine Superintendent well in advance of your cruise.

Foreign Operations

Clearances: Any operations in the exclusive economic zones (generally within 200 nm of a foreign coast) or requiring port calls outside of the United States will require clearances. Depending on the country, these clearances must be obtained many months (6 months is common) in advance through the U.S. State Department. Chief Scientists should refer to the applicable U.S. Department of State [Research Application Tracking System \(RATS\)](#) for additional information.

Customs and Immigration: Foreign port calls will require all scientists embarked or leaving the ship to go through Customs and Immigration. Individuals are responsible for meeting U.S. and foreign nation customs, immigration and immunization regulations. SkIO Ship Operations will not make arrangements for members of the science party or for scientific equipment being shipped into or out of a foreign country.

Foreign Agents: R/V *Savannah* will, in general, have an agent in a foreign port which may be used, at their expense, by members of the scientific party. The name of the agent and additional details will be available from the Marine Superintendent.

When R/V *Savannah* calls at ports outside of the U.S. a ship's agent will be retained to provide logistical support. The agent's services encompass port formalities, arranging for fuel, provisions, handling official shipments to and from the ship, and assisting persons joining and leaving the ship (including procurement of tickets and reservations when required). The Chief Scientist may arrange for a separate billing with the ship's agent or may make arrangements with another agent. If this is not possible, the Chief Scientist may be authorized to use the ship's account with the agent to provide services to the science party by authorizing a purchase order as described below. While agents are normally very friendly and helpful, all individuals in the scientific party should recognize that every action by the agent results in a charge that can be substantial. SkIO will charge the appropriate Chief Scientist for costs incurred on behalf of, and directly related to, the science programs. Such services may include:

1. Expenses of required foreign observers
2. Air fares for unexpected travel
3. Taxi fares
4. Rental cars
5. Debarkation fees in foreign ports
6. Shipping and handling charges for science equipment
7. Commercial crane or forklift service
8. Stevedores
9. Purchase of supplies (gases, chemicals, etc.)
10. Satellite communication charges
11. Medical expenses
12. Services for repair of science equipment

The Chief Scientist has financial responsibility for these costs and is advised to assure that provisions are made to properly assign charges to the projects participating on a cruise. It is recommended that the Chief Scientist notify co-PIs of anticipated financial obligations well in advance of the cruise.

The Chief Scientist is responsible for establishing a purchase order with SkIO Ship Operations in advance of the cruise to provide a mechanism for charging these services. This purchase order must be established prior to the Chief Scientist being authorized to use the agent's services.

Please be aware that bills from agents may arrive several months after the last port call and that SkIO's billing will follow the agent's billing. SkIO does not charge any administrative fee for this service.

The Captain will provide the agent with a list of authorized signatories, e.g. the Captain, Marine Technician, Chief Engineer, Chief Scientist (note the requirement above for a purchase order), and other scientists if designated by the Chief Scientist. The agent will be instructed that SkIO will not pay for any charges made by the ship or science party without a signed authorization. This form must be signed by an authorized ship's officer and the scientist generating the request. SkIO will bill the Chief Scientist for services to the science party when the agent's invoice is received, translated if necessary, and reconciled. This has occasionally taken six or more months after completion of foreign research cruises.

Radioisotope Work

Any cruise requiring the use of radioisotopes must be coordinated with the Marine Superintendent well in advance. This work requires approval and monitoring by the SkIO Radiation Safety Officer. Radioisotope work is confined to either the ship's isotope laboratory van or in some special cases the ship's fume hood. The Chief Scientist is responsible for the safe use and transport and clean-up of all radioactive material including waste generated onto and off the ship. In no case may radioactive waste be left on the ship. Radioisotope swab tests must be conducted before and after the cruise, with written reports submitted to the Marine Technician. The complete radioisotope policy can be found in [Appendix 4](#).

Explosives

The transport, loading and use of explosives is strictly regulated by the U.S. Coast Guard. Any use of explosives must be coordinated well in advance with the Marine Superintendent.

Hazardous Materials

Programs using hazardous materials shall be coordinated well in advance with the Marine Superintendent. The Chief Scientist is responsible for the safe use, storage and disposal of all hazardous materials brought on the R/V *Savannah*. The Chief Scientist shall assure that Material Safety Data Sheets (MSDS) for all materials are brought onboard and made available to the ship's Captain. The Chief Scientist will also assure that adequate containment materials, neutralizing agents, etc. are available on the ship to deal with spills or other accidents. In general, hazardous materials (e.g. formalin) are not to be used in the ship's laboratories and must be confined to laboratory vans or open decks. The science party is required to inform the ship of any lithium batteries brought onboard. For a complete lithium battery policy see [Appendix 7](#).

Diving Operations

Diving operations from R/V *Savannah* are subject to the NAUI, AAUS & SkIO Dive Policy ([Appendix 3](#)) and the UNOLS Research Vessel Safety Standards. Projects with dive operations should contact the Marine Superintendent & SkIO Dive Officer well in advance of the cruise.

Reporting of Surface and Subsurface Obstacles

Surface and subsurface moorings and bottom mounted instrument packages can present hazards to navigation to surface vessels or submarines and can damage, or be damaged by, fishing vessels. The Principal Investigator/Chief Scientist is responsible for obtaining any necessary permits from appropriate regulatory bodies (e.g. USCG and USA-COE for designated navigation channels, traffic schemes, etc.; NOAA Sanctuary Managers for designated marine sanctuaries, etc.) and for reporting the establishment and disestablishment on any surface or subsurface obstacles. Information on designated areas is available from the latest nautical charts for the operating area, the Coast Pilot or Sailing

Directions for the area and the UNOLS website (www.unols.org). The Ship Operations Office can provide assistance and the R/V *Savannah* can send messages regarding deployment or recovery but the responsibility remains with the PI/Chief Scientist.

Compressed Gas Cylinders

Compressed gas cylinders must be secured at all times on board R/V *Savannah*. Portable racks are available for a limited number of bottles. Projects using a large number of bottles should provide racks or pallets. Bottles not in use are to be stowed upright with the caps in place. Flammable gases must be stowed on the weather decks.

Unmanned Aerial Systems (UAS)

The R/V *Savannah* Unmanned Aerial Systems (UAS) policy generally follows the UNOLS UAS policy as outlined in RVSS Ch.19 and the UNOLS UAS handbook. For full details on the vessel UAS policy see [Appendix 9](#).

SECTION IV: DURING THE CRUISE

The Skidaway Institute of Oceanography operates the R/V *Savannah* to support scientists conducting oceanographic research and education. A clear understanding of the roles of the Captain, Chief Scientist, and Marine Technician, along with good communication between them, is required to assure both the safety and success of any cruise.

Responsibilities, Authorities and Interactions

Captain

The Captain of a vessel, by law and long-standing tradition, has the full and final responsibility for the ship and all people onboard. In association with this responsibility he has full authority over all operation and personnel, both crew and scientific party. If circumstances require alterations of the scientific operations for safety or legal reasons, the Captain shall inform the Chief Scientist and work to resolve the problems at hand. Disagreements between the Captain and the Chief Scientist which cannot be resolved onboard shall be expeditiously referred to the Marine Superintendent. However, in all decisions regarding safety or legal matters, the Captain's authority is absolute.

Chief Scientist

One member of the scientific party is designated as the Chief Scientist. This designation is required to provide a clean line of communication between the operating crew and the scientific party. This individual is responsible for all scientific projects of all scientists conducted on their cruise including the scheduling of the work. In addition, the Chief Scientist is responsible for supervising the scientific party in matters of organization, administration, safety, and compliance with shipboard regulations and legal requirements (e.g. occupational safety and health, environmental compliance, etc.).

The Chief Scientist should consult frequently with the Captain and Marine Technician regarding the operational details and progress of the cruise. The Chief Scientist has the authority to modify the scope and order of work, cruise track, etc., within the general scope of the cruise plan. Deviations from the cruise plan are to be discussed with the Captain before implementation. The Marine Superintendent shall be notified immediately of any major deviation in program accomplishment, operating area, or schedule.

Marine Technician

The Marine Technician is the primary coordinator between the scientific party and crew. Because of their experience and knowledge, the Marine Technician should be kept informed of planned operations and unusual circumstances. Any questions or problems which arise at sea should be directed to the Marine Technician and/or Captain.

One Marine Technician is on every cruise. This technician is on watch twice (2) per day, but is available as needed if duty calls. However, if 24-hour technical assistance is needed for your cruise, please contact the Marine Superintendent well in advance of your cruise to discuss. If your project requires additional support and has the need for an additional technician(s), please contact the Marine Superintendent in advance. Additional charges may apply. Certain shipboard equipment and systems require a Marine Technician onboard. No shared-use equipment will be released for use on the R/V *Savannah* when a Marine Technician is not onboard.

At sea, the Marine Technician is responsible for operation of all ship supplied scientific equipment including CTD, ADCP and SCS data acquisitions systems, satellite communications (internet and email), shared use equipment, and the ship network. The Marine Technician will assist with the safe operation and troubleshooting of science supplied equipment, but will not be responsible for this equipment if it fails.

Prohibited Items

The following items are not permitted onboard the R/V *Savannah* or on SkIO property:

- Alcoholic beverages
- Narcotics and other controlled substances
- Pets
- Firearms and non-folding sheath knives

As noted on the Confidential Release and Consent Form, members of the science party may be subject to drug/alcohol testing if involved in a "Serious Marine Incident" as defined by federal regulation.

Smoking Policy

In accordance with Georgia State law and SkIO policy, smoking is prohibited in all interior spaces of the R/V *Savannah* (laboratories, public areas, berthing areas, etc.) with the exception of a designated area on the aft deck.

Reporting of Injuries and Accidents

The R/V *Savannah* has limited medical capabilities onboard as described in the pre-cruise planning section of this manual. Any accidents, injuries or illnesses are to be immediately brought to the attention of the mate on watch or the Captain. The Captain will see that appropriate treatment is provided to the ability of the ship. In the case of a medical emergency, the Captain has the final responsibility and authority for the appropriate course of action including medical evacuation or termination of the cruise.

Arrivals and Departures

In home port, and on port calls between cruises away from home port, the oncoming scientific party will normally board the ship by 0800 and the ship will depart at 1000. The oncoming scientific crew can request berthing onboard the night before departure. In most cases this can be accommodated, if the ship is in port.

Arrival back in port will generally be by 1600 the last day of the cruise. The scientific party should have the laboratory and berthing spaces clear and cleaned and be off the ship by the end of the day.

Special circumstances may require modification of these procedures. Cruise planners should consult with the Marine Superintendent in advance.

Messing Facilities

The mess and conference room can accommodate approximately 16 people at a sitting. Meals are served cafeteria style during hours posted on the bulletin board. The ending time of a meal indicates the time one should finish, not arrive in line. Those finished eating should leave the area so others may be seated.

Those with special dietary requirements should make them known to the cook. The galley refrigerator is stocked for snacks after the evening meal. The ship's reefers and dry stores areas are off-limits unless permission is granted by the cook. Users of the galley and mess deck must properly dispose of all trash and leave the area in an orderly condition for the next meal.

Suitable clothing will be worn at all meals; shoes and shirts are mandatory. Rain gear, coveralls or clothes dirty from work shall not be worn on the mess deck or in the lounge. The ship is the home for scientific personnel and the crew; courtesy dictates that conduct, including wearing apparel, be within acceptable standards.

Refuse Disposal

The R/V *Savannah* complies with Annex V of MARPOL 73/78 which forbids the overboard discharge of all plastics and restricts all other overboard disposal. No refuse shall be thrown overboard without the permission of the Captain. Separate containers for plastic waste are provided. "Sharps" shall be disposed of in appropriate containers rather than in the general garbage.

Sanitary System

The R/V *Savannah* is provided with an approved Marine Sanitation Device (MSD). Please note and comply with the posted restrictions regarding what may be put into the system.

Shipboard Clothing and Personal Items

The ship provides hard hats, work vests (for flotation), and some rain gear. All other items are the responsibility of the individual. Open-toed shoes or sandals are hazardous to the wearer onboard ship and are not to be worn when working. A stout, completely enclosed shoe is required as a minimum. Persons working on deck should consider safety shoes with reinforced toes.

The ship provides bed linens and towels. Individuals are responsible for soap, shaving gear, toothbrush, and paste, etc. Items such as coffee pots, heaters, hot plates, etc., are not permitted in staterooms because of health and safety concerns.

Potable Water

All members of the scientific party are requested to conserve water at all times. This can be done by using water sparingly when showering and limiting deck use.

Emergency Drills

Fire and abandon ship drills are required by federal regulation and are held monthly. An initial drill will occur shortly before or after departure and will include instruction from the First Mate. This drill is mandatory for all members of the scientific party. It is the responsibility of the scientific party to become familiar with their assignments for each drill and to know the location of the survival suit, life jacket, and emergency breathing apparatus in his/her berthing area. Drills are to be taken seriously as training for survival. All members of the scientific party will attend drills properly attired with hat, jacket, and life jacket as if the ship were to be abandoned.

Safety

Working and living on a ship at sea is inherently dangerous. Each member of the scientific complement, as well as the crew, must be safety conscious at all times. Any situation or condition that might constitute a safety or fire hazard shall be corrected at once, either by the person observing the condition if it's within their purview or by notifying the watch officer on the bridge for further action.

RVOC Safety Manual

A copy of the "[RVOC Safety Training Manual - Chapter 1 Research Party Supplement](#)" is in each stateroom. Individuals who have not read it are strongly encouraged to do so -- it contains much useful information which can help prevent serious injury or even death.

Work Vests, Safety Harnesses, Hard Hats

Work vests and, if required, safety harnesses and life lines are to be worn by everyone on deck for over-the-side operations such as CTD casts, instrument deployment, and mooring work. Hard hats are required for any operations with cranes, A-frames, etc. Life vests or other appropriate flotation devices are to be worn at all times in boats deployed from the R/V *Savannah*.

Doors, Hatches, Wire Ropes

Stand clear of all wires, ropes and blocks that are under load or moving. Do not get caught between a moving object and a stationary part of the ship. Do not stand in the bight of a line that is under tension. Never wrap a line around your hand or other part of your body so that you can't let go of it immediately if you need to. Keep fingers, hands and feet away from the knife edges of watertight doors and hatches. Open doors or hatches must be secured and closed doors and hatches must be dogged. Doors are never to be allowed to swing freely with the motion of the ship. Brief exceptions may be granted in calm sea conditions (with the approval of the mate on watch) for moving heavy equipment between the deck and laboratory.

Restricted Areas

Personnel are not to enter the following areas:

- Anyone's stateroom without their explicit approval
- The engine room or other machinery space without approval of the Engineer or Captain (hearing protection will be required)
- The bridge unless approved by a crew member
- The top of the pilot house, mast, stacks or other elevated area without permission of the mate on watch (a safety harness will be required at sea and the ship's radars and communications equipment may have to be secured to eliminate RF and microwave energy hazards)

Communications

At sea voice and data communications are provided using the ship's Starlink satellite network. The ship's Marine Technician is responsible for the operation and monitoring of all network communications at sea and while dockside. In general, all science members wishing to communicate using this network must see the ship's Marine Technician to gain access. Each science crew member may have access to two network devices for internet and data communications. The name and operating system of any added device must be provided to the ship's technician. These policies are discussed during the safety briefing at the start of each cruise. For a complete internet use policy while onboard, see [Appendix 12](#). Those ashore wishing to communicate with the R/V *Savannah* while at sea need to contact the Marine Superintendent John Bichy for dialing instructions (jbichy@uga.edu, 912.598.2456).

SECTION V: POST CRUISE OBLIGATIONS

Shipboard Clean-up

The Chief Scientist is responsible for assuring that the members of the scientific complement clean all berthing and laboratory areas used during the cruise. This is necessary to make these areas available to the oncoming scientific party.

Cleaning guidelines are:

- Laboratories: Sweep and swab (if necessary) the decks; wipe down bench tops and cabinets; scour sinks and empty trash containers to "dumpster."
- Staterooms: Scour sink; clean mirror; wipe down fixtures; wash off any spots on bulkheads or furnishings; vacuum rugs; fold down blankets neatly at foot of bunks; put dirty linen in the laundry bag under stairs, in berthing area.
- Heads and Showers: Swab out toilets and wipe down the outside; scour shower bulkheads and deck.

Please leave these areas in the condition you would like to find them when you come onboard – this will be greatly appreciated by the next scientific party. The Marine Technician can provide cleaning equipment and advice. The Chief Scientist is also responsible for assuring that all hazardous materials are removed and disposed of properly. If the ship incurs any direct costs, such as crew overtime, professional cleaning fees or hazardous waste disposal fees because the scientific party did not fulfill their obligation to clean the designated areas or dispose of materials, they will be billed to the Chief Scientist or Principal Investigator as appropriate.

Off-Loading

The crew will assist the scientific party in unloading all equipment if time permits. Any use of the ship's crane must be conducted by ship crew members. A forklift can be made available in the vessel's home port. All offloading is expected to be completed on the return day. If science personnel and gear are to be offloaded on a non-operational day an in-port day rate may be charged.

Post Cruise Reporting

UNOLS Research Vessel Cruise Assessment

Once the cruise is over and the cruise is rectified by the Marine Superintendent, the Chief Scientist will be sent a request to complete a Post Cruise Assessment through the UNOLS MFP system. This assessment provides useful information to the Marine Superintendent in the management of the vessel and provides UNOLS with information to evaluate the performance of the vessels in the academic research fleet. Chief Scientists are also encouraged to call or e-mail the Marine Superintendent with any comments

regarding the cruise, the ship, the ship's personnel, shore support provided or any other matter related to the ship's accomplishment of the scientific mission.

UNOLS Cruise Report/Ship Utilization Data Form

Following the cruise a Cruise report will be completed by the Captain and Marine Superintendent and a copy forwarded to the Chief Scientist for his/her signature. If errors are noted, Ship Operations should be contacted immediately for correction and re-submission.

Preliminary Cruise Report (U.S. State Department Requirement for Foreign Cruises)

The Chief Scientist will be required to complete a Preliminary Cruise Report found at the [US State Department's RATS website](#) and submit it within 30 days after cruise completion to the Research Vessel Clearance Officer at the Department of State (as outlined in the Clearance Approval received from the State Department). Additional information can be found in the State Department's Notice to Research Vessel Operators, No. 66, Rev. 1, which is available from SkIO Ship Operations or any other Marine Superintendent for the academic fleet.

SECTION VI: APPENDIX 1 – 12

Appendix 1: Release and Waiver of Liability Form

Appendix 2: Medical Information Form

Appendix 3: SkIO Diving Policy

Appendix 4: SkIO Policy on Radioisotopes Onboard SkIO Vessels

Appendix 5: Radiation Van Layout

Appendix 6: Shared Use Equipment List

Appendix 7: Lithium Battery Use Policy

Appendix 8: Minor Policy

Appendix 9: Unmanned Aerial Systems (UAS) Policy

Appendix 10: Ship General Arrangement Drawings

Appendix 11: Main Deck Socket Drawing

Appendix 12: Internet Policy



**APPENDIX 1: RELEASE AND WAIVER OF LIABILITY FORM FOR
ALL NON-EMPLOYEES OF
THE UNIVERSITY OF GEORGIA
SKIDAWAY INSTITUTE OF OCEANOGRAPHY**

(Please read carefully before signing.)

(Signature of Parent or Guardian must be acquired if Participant is under 18 years old)

DESTINATION: _____ page 1

Departure Date _____ Return Date _____
Location _____ Location _____

The undersigned hereby acknowledges that his/her presence involves an inherent risk of physical injury and assumes all such risk. The undersigned hereby agrees that for the sole consideration of the Skidaway Institute of Oceanography of The University of Georgia allowing the undersigned to be present, the undersigned does hereby release and forever discharge The University of Georgia, Skidaway Institute of Oceanography, and the Board of Regents of the University System of Georgia, its members individually, and its officers, agents and employees from any and from all claims, demands, rights and causes of action of whatever kind of nature, arising from and by reason of any and all known and unknown, foreseen and unforeseen bodily and personal injuries, damage to property, and the consequences thereof, resulting from my presence.

I grant permission to The University of Georgia Skidaway Institute of Oceanography to use photographs taken of me on the date and the location listed below.

I understand that the acceptance of this release and waiver of liability by the Board of Regents of the University System of Georgia shall not constitute a waiver in whole or in part of sovereign immunity by said Board, its members, officer, agents and employees.

I have read the above carefully before signing. Further, I understand that this release and waiver of liability shall be effective for the duration of the activities associated with the operations.

NAME (please print legibly)	INSTITUTION	SIGNATURE or GUARDIAN	DATE mm-dd-year
Example:			
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

The University of Georgia, Skidaway Institute of Oceanography
10 Ocean Science Circle – Savannah, GA 31411



**RELEASE AND WAIVER OF LIABILITY FORM
FOR ALL NON-EMPLOYEES OF
THE UNIVERSITY OF GEORGIA
SKIDAWAY INSTITUTE OF OCEANOGRAPHY**

(Please read carefully before signing.)

(Signature of Parent or Guardian must be acquired if Participant is under 18 years old)

DESTINATION: _____ page 2

Departure Date _____ Return Date _____

Location _____ Location _____

NAME (please print legibly)	INSTITUTION	SIGNATURE or GUARDIAN	DATE mm-dd-year
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Maritime Medical Access Medical Information Sheet

Patient Name: _____

DOB (M/D/Y): ____ / ____ / ____ **Age:** ____ **Sex:** ____ **Vessel Name:** _____

Patient Address: _____

Patient Phone: _____ **Patient Email:** _____

CURRENT MEDICAL CONDITIONS:

ALLERGIES:

PAST MEDICAL/SURGICAL HISTORY:

MEDICATIONS:

ADDITIONAL NOTES:

RECENT HOSPITALIZATIONS:

The above-named individual hereby authorizes the release of medical records to all relevant healthcare facilities involved in their continued care and to any emergency contact(s) listed below:

PRINT NAME: _____ **SIGNATURE:** _____ **DATE:** _____

EMERGENCY CONTACT: _____ **RELATIONSHIP:** _____ **PHONE:** _____

APPENDIX 3: R/V Savannah

Dive Operations Policy

ver. 1.2 May 2023

The University of Georgia SKIDAWAY INSTITUTE OF OCEANOGRAPHY (SkIO), is an organizational member of the American Academy of Underwater Scientists (AAUS).

As a UNOLS vessel, the diving standards practiced aboard the R/V *Savannah* shall meet or exceed those specified in the UNOLS Scientific Shipboard Diving Safety Addendum Report (April, 1996), the Research Vessel Operators' Committee (RVOC) Safety Training Manual (Section 16. Diving Operations), and the 2006 AAUS operations manual.

The purpose of the Research Vessel Dive Standards is to ensure that safe practice is maintained at all times during dive operations. To that purpose, procedure and protocol are described.

DIVE PLANNING:

Prior to the cruise, an online [Pre-cruise Form](#) must be submitted by the Chief Scientist. On this form a checkbox is noted for any dive operations. After Marine Operations review, a Dive Plan form will be sent to the cruise Chief Scientist for completion. This form will be reviewed by the UGA/SkIO Dive Officer for approval. In addition, a current diver reciprocity form is required for each AAUS diver or reciprocity credentials for other organizations, such as the NOAA, or the EPA.

A Pre-Dive meeting attended by all divers, the principal investigator, participating crew, and the Captain will be held prior to commencement of dive operations to clarify working responsibilities and to explain the emergency procedures and safety plan of the vessels involved and of the dive operation. The Dive Form will be updated with any new details of the dive if needed. Following the dive meeting, there will be a walkthrough of the equipment to be used including the small boat, diver staging area, and emergency medical equipment.

All dive operations are to be supervised and administered by the on-board Dive Supervisor, either from the lead institution or designated by the SkIO, however ultimate authority and responsibility for ship operations rests with the Master of the R/V *Savannah*.

DIVER RECIPROCITY:

All visiting divers must meet AAUS reciprocity requirements as outlined in Section 1.27, Section 5.00 and Appendix 8 of the AAUS *Standards for Scientific Diving* manual. NOAA and EPA divers meet and exceed these standards, but must show proof of NOAA training, date of last dive, and medical information. All persons cruising on the R/V *Savannah* are required to complete a medical form and a waiver form provided by the ship before leaving the dock.

The R/V *Savannah* Dive Officer may issue a Temporary Diver Permit in cases where an individual may not meet all of the requirements of the AAUS manual, but has demonstrated diving proficiency, is essential to the dive operations and is able to dive safely in the judgment of the Dive Officer and the R/V *Savannah* Master. This permit is valid for the current Dive Plan only.

Commercial Divers, if self-insured and carrying out dive operations outside the limitations of scientific divers, may be exempt from this requirement, but must provide essential emergency information and a dive plan to conduct operations from the R/V *Savannah*.

DIVING FROM THE RESEARCH VESSEL:

The R/V *Savannah* will provide transport, accommodations, and support for cruise dive operations. The ship will be responsible for launch, recovery, and oversight of the dive tender vessel. During dive operations the ship will maintain communications and proximity to render assistance to the dive tender (see Small Boat Operations).

There are circumstances where divers may enter the water directly from the R/V *Savannah*. At those times the Ship will be at anchor and the engines shut down. Divers will stage at the stern of the vessel and enter and exit the water via the ship's dive platform ladder. The dive tender will be deployed, manned by a crew member and down-current in close proximity to the ship, in order to render assistance to the divers during these operations. In addition, a floating buoy line will be trailed from the ship stern.

PROVIDED EQUIPMENT

Dive operations on cruise aboard the R/V *Savannah* should be self-contained. All personal dive gear, underwater tools, and dive tanks must be provided by the user. The ship is not equipped for surface-supplied diving. At present, the R/V is not equipped with a dive tank fill station. If more than 18 dive tanks are to be loaded for dive operations, "Pelican" type upright storage tank racks must be provided by the user for safe storage.

The R/V provides support crew for the dive tender, the dive tender, a safe launch and recovery platform, radio communication, an emergency plan, medical and oxygen supplies if needed, trained personnel for administration of oxygen and first aid, and a dive flag.

SMALL BOAT OPERATIONS

The R/V *Savannah* carries as standard equipment a 13' AVON RHIB equipped with a 30 horsepower Tohatsu outboard. This small boat is the dive tender and is manned by a crew member familiar with dive operations.

The RHIB is stowed on the R/V *Savannah* in a cradle on the winch deck of the R/V. Launch is accomplished with the deck crane using a sling arrangement to place the vessel in the water. This is a common procedure for the ship, is considered separate from dive operations and is handled entirely by the ship's crew.

Loading and offloading of the tender may be done from either the starboard side of the *Savannah* or from the stern, depending on sea conditions and ship operations. In either case a stainless steel ladder is mounted for access and flotation gear is worn by everyone working over the side.

Equipment carried on the small boat includes: a dive flag, waterproof VHF radio, horn, flares, flotation devices, first aid kit, a water-resistant watch, and bottled water. A dive flag must be displayed at all times divers are in the water. As dive support vessel, the R/V *Savannah* must also display a dive flag.

Communication between the dive tender and the R/V *Savannah* is essential. As standard practice the tender carries a water-resistant VHF radio using Channel 19. The R/V will remain in close proximity to the tender and cease any conflicting operations. A designated crew member or, preferably the Dive Supervisor, will be posted as Observer and will maintain communications with the tender. The dive log will be kept by the Observer on board ship and the tender operator will radio dive times and depths to the Observer.

Divers in the water are to communicate with the dive tender operator with standard diver hand signals upon submerging and resurfacing. All divers should give the OK signal upon surfacing. The tender operator will advise the Dive Supervisor aboard the R/V *Savannah* of diver status upon submerging and resurfacing and before returning to the vessel.

Upon surfacing and before divers approach the dive tender, the dive tender operator will place the tender down-current from the divers, stop the engine and then signal the divers that it is safe to approach and board the vessel. The operator will assist the divers in boarding as needed.

EQUIPMENT STORAGE:

All NITROX and air tanks are to be stored upright in “Pelican” type steel racks located in the dry lab. Dive gear bags may be stowed in the air hood closet or in the wet lab. After use, dive gear may be washed down with fresh water and hung to dry on the main working deck.

EMERGENCY PROCEDURES:

In the event of a dive-related injury the affected diver must be transported as quickly as possible to the R/V *Savannah*. Most members of the ship’s crew, all AAUS divers, and the Dive Supervisor are trained in first aid and in the administration of oxygen. A complete medical locker is maintained by the R/V *Savannah* and the ship carries medical grade oxygen to supply an injured diver for over 3 hours at 12 L/min or 6 hours at 6 L/m.

The ship’s Master is responsible for notification of medical response personnel. In the event of a medical emergency a United States Coast Guard medical evacuation helicopter will be deployed from the USCG Emergency search and Rescue operations. Below is a list of emergency contacts for the nearest hyperbaric chamber and emergency room.

Hyperbaric Chamber Facilities and Contact Info

	Primary	Secondary
Name of facility	Prisma Health	Duke University Medical Center
Address	5 Richland Medical Park Dr. Columbia, SC 29203	200 Trent Drive Durham, NC 27710
Point of contact	On duty care provider Tamara Chamber	On duty care provider
Phone Number	1.803.434.7812 or 1.803.434.7222	919.684.67226, 919.684.8111

Emergency Hospitals

	Primary	Secondary
Name of facility	Memorial Medical Health	St. Joseph Candler Hospital
Address	4700 Waters Ave Savannah, GA 31404	11705 Mercy Blvd Savannah, GA 31404
Point of contact	On duty care provider	On duty care provider
Phone Number	1.912.350.8113	1.912.819.2419

APPENDIX 4:

RADIOISOTOPES POLICY ONBOARD SKIO VESSELS

22 Oct 2020

Ver. 3.0

The introduction, use, and disposal of radioisotopes onboard the research vessel R/V *Savannah* shall comply with the regulations of the Federal Nuclear Regulatory Commission (NRC) and State of Georgia statutes and be monitored or supervised by the SkIO Radiation Safety Officer (RSO). Requests for use of radioisotopes aboard the R/V *Savannah* must be submitted to the (RSO) at least 60 days in advance of the cruise.

Dr. Marc Frischer
Radiation Safety Officer
marc.frischer@skio.uga.edu
912-598-2308

PRE-CRUISE PROCEDURES

1. The UNOLS ship-time request and SKIO pre-cruise planning form (section III) shall include anticipated use of radioisotopes, including the type and amount, by the principal investigator.
2. Not less than sixty (60) days in advance of a scheduled cruise, the PI will provide the RSO with a detailed, written radioisotope use plan. This plan will be e-mailed to the RSO and Marine Superintendent. This plan is in addition to the pre-cruise planning form. The written plan must include the following items:
 - A. A one-sentence statement of the general nature and objectives of the proposed work, plus a one-sentence statement of probable start and end dates, and probability of repetitions later. Describe the location of work including the latitude and longitude or distance and direction from a recognized landmark.
 - B. The name and pertinent experience of the person to be in charge of the radioisotope work aboard ship and lists of names and pertinent experience of all others who will handle radioisotopes aboard. Note that SkIO employees who handle radioisotopes must have a current radioisotope usage certificate. An online annual refresher course is available at <https://research.uga.edu/safety/radiation/>. If the person has never received radioisotope usage training please contact the RSO. Non-SkIO personnel must submit a memo from their organization's RSO stating that the person has received radiation safety training adequate to satisfy requirements of 10CFR19 (not needed if a previous radioisotope use authorization for the specific PI and user had been granted and is on file with the SkIO RSO).

- C. A list of all radioisotopes to be involved, chemical and physical forms of each, total of each in possession on the cruise, total of each to be in use at any time.
- D. A description of proposed activities in sufficient detail to permit determination of types and magnitudes of radiation hazards involved.
- E. A list of SkIO facilities to be used and any temporary isotope vans to be used. **UNSEALED RADIOACTIVE MATERIAL WILL BE RESTRICTED TO THE RADIOISOTOPE VAN OR SHIP FUME HOOD.** Instruments with sealed sources may be allowed in the ship's lab only with the approval of the Marine Superintendent and the RSO.
- F. A list of pertinent safety devices and procedures:
 - i. lab coats, gloves, shoe covers, other apparel
 - ii. portable radiation survey instruments to be provided by users
 - iii. proposed survey frequency and techniques
 - iv. personal dose reduction equipment to be provided by users (i.e. shields, forceps, long pipets, vial opening devices, etc.)
 - v. fume hoods for gaseous isotopes, and storage – freezers & refrigerators (located on van drawing).
- G. A waste disposal plan
 - i. Note that the SkIO license does not permit discharge of radioactive wastes to the ocean; all wastes must be packaged and brought to shore for disposal. Disposal of radioactive waste by SkIO involves a separate fee; fee schedule is available on request.

3. If written information is satisfactory and after conferring with the Marine Superintendent, the SkIO RSO will prepare a SkIO Radiation Use Authorization. The Authorization will include:

- A. work authorized, including location onboard, personnel, description of radioisotopes to be used,
- B. conditions, including monitoring work, post-cruise surveying/clean-up and material disposal cost apportionment, and
- C. appropriate signatures (P.I, RSO, Marine Superintendent).

CRUISE PROCEDURES

1. Monitoring/surveying

- A. Monitoring areas of radioisotope usage will be done with the onboard survey meter and/or wipe tests by an authorized handler. The minimum frequency of monitoring must be specified in the Radiation Use Authorization form and approved by the SkIO RSO.
- B. If a spill or other accident with radioisotopes occurs, the ship master and RSO must be notified and monitoring must be done immediately after clean-up, and pursued until background levels of radioactivity are recorded or as specified in the Radiation Use Authorization.
- C. All monitoring results will be recorded on prepared forms, properly dated, and the surveyed areas will be marked on a deck plan of the ship to correspond with the recorded survey results.

2. Safety and protective equipment

- A. Normal precautions in dealing with radioactivity must be maintained onboard:
 - i. Cutting or diluting a “hot” stock solution must be done in a contained area, such as the metal sinks in the van. Sinks must be stoppered during these operations.
 - ii. The person in charge of radioisotope usage must either do this personally, or supervise on the spot.
 - iii. Special care should always be maintained when transporting, filtering or otherwise handling radioactive samples.
 - iv. Radioactive stocks must be maintained in a container with a fixed lid, to prevent accidental spills.
- B. If a spill should occur, immediate steps must be taken to decontaminate the area under the supervision of the person in charge of radioisotope usage.
 - i. Decontamination procedures should continue until background levels are obtained on the survey instruments.
 - ii. The accident, and procedures used in the clean-up, must be recorded, including the volume and disintegrations per-minute lost.
- C. No special protective equipment is required for most radioactive experiments onboard; however, the RSO will specify such if considered necessary.

3. Waste retention onboard
 - A. Solid waste must be stored in a well-labeled, transportable container with tight-fitting lid, and the container should be stored away from most lab activity. (usually plastic bags stored in a 55 gal. or similar drum on deck).
 - B. Liquid waste must be stored in a well-labeled, transportable, and leak-proof plastic container. The container should be stored away from most lab activity. Aqueous wastes should be segregated from solvents.
4. The ship's Master has absolute authority on all safety matters onboard.

POST-CRUISE PROCEDURES

1. Monitoring/Surveying

- A. An authorized radioisotope handler onboard will make a final radioactive survey and written report before departing the vessel.
- B. If there are subsequent cruises departing away from SkIO where small amounts of radioisotopes could affect scientific data, the Marine Superintendent reserves the right to complete a baseline survey of the ship. This may be done by a representative of the University Miami Tritium Labs under contract to NSF for this purpose or other individuals recommended by the RSO if locally available.
- C. Wipe tests will also be performed by an authorized radioisotope handler. The number and location of wipe tests will be determined by the quantities involved and the areas of the ship possible exposed to radioactivity.
 - i. Prior to a cruise departure, usually in the isotope use authorization, the RSO will recommend the materials to be used for the wipe.
 - ii. The RSO will specify the treatment of the wipe materials.
- D. Results of survey-meter and wipe tests, will be recorded on prepared forms, properly dated, and the surveyed and/or wiped areas marked on a deck plan of the ship.

2. Clean-up Procedures

- A. The authorized radioisotope user and PI will be responsible for any spillage of radioactive material and for the clean-up.

- B. Materials for clean-up must be available aboard the vessel before isotopes are used. Spill kits must include:
 - i. Detergent and water
 - ii. Decontamination solution and water (i.e., Micro, Count-off, etc.)
 - iii. Absorbent materials

If a spill occurs the ship master must be notified immediately and the RSO contacted.

3. Waste disposal

- A. Sealed, labeled containers of solid and liquid waste will be off-loaded under the supervision of the person in charge of radioisotope usage.
- B. Appropriate waste disposal is the responsibility of the persons generating the waste. Detailed disposal procedures must be provided in the pre-cruise plan. Please consult with the SkIO RSO during the preliminary cruise planning if guidance is needed. The waste containers will be transported to the home institution of the persons generating the waste, by persons generating the waste, and at the cost of the person generating the waste (not at the cost of SkIO Ship Operations).
- C. If the home institution is SkIO, waste disposal guidelines set by SkIO will be followed, with costs borne by the generator of the waste.

4. Re-Shipment of Unused/Opened Isotope Stocks or Standards

- A. All shipments of any unused portions of radioactive material are to be monitored by the institution whose license the scientist is operating under. It will be the responsibility of the person in charge of isotope usage during the cruise to ship any of these “leftovers” in accordance with all applicable Federal and State regulations and as per their respective institutional requirements. Please consult with the SkIO RSO during the preliminary cruise planning if guidance is needed.

5. Reports

- A. A written “Post Cruise Radioisotope Use Report” prepared by the person in charge of radioisotope use, will be given to the ship’s Master at the end of the cruise. The report will be on the form at the end of this appendix and will include:
 - i. All the survey and wipe-test records and any reports of spills.

- ii. Also a final disposition of materials (accountability) i.e., amount brought onboard, amount used, and amount remaining.
- b. The Master will include the report and all addenda with a preliminary cruise report to SkIO Ship Operations, who in turn will make two copies and distribute the copies to the RSO and the PI. A copy will be available for review by all subsequent PI's upon request.

6. Costs

The P.I. for the cruise is responsible for the removal of all radioactive materials and the clean-up of any contamination required. If it is necessary for SkIO's RSO to perform these tasks, the P.I. will be charged for the costs incurred.

HAZARDOUS MATERIALS

EPA and Institute Regulations Prohibit Improper Disposal. If found, contact the Radiation Safety Officer at (912) 598-2400.

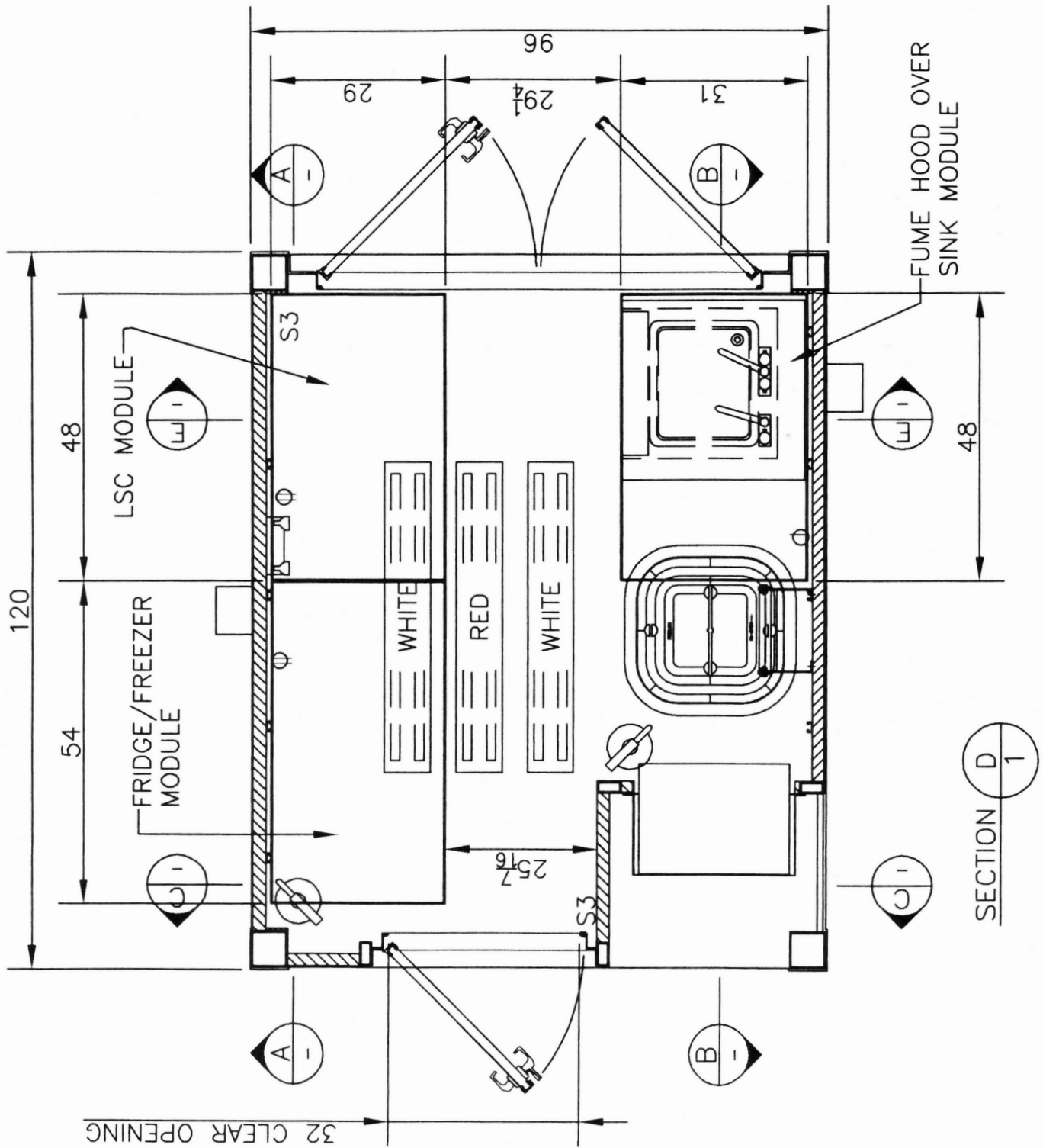
<input type="checkbox"/> WASTE <input type="checkbox"/> SURPLUS	
DATE:	
PRINCIPAL RESEARCHER (PRINT)	
PHONE #	BUILDING, DEPARTMENT, ROOM #
CHEMICAL IDENTITY & CAS NUMBER	
SIGNATURE:	QUANTITY:
FOR HAZARDOUS MATERIALS PROGRAM USE ONLY:	

HAZARDOUS MATERIALS

EPA and Institute Regulations Prohibit Improper Disposal. If found, contact the Radiation Safety Officer at (912) 598-2400.

<input type="checkbox"/> WASTE <input type="checkbox"/> SURPLUS	
DATE:	
PRINCIPAL RESEARCHER (PRINT)	
PHONE #	BUILDING, DEPARTMENT, ROOM #
CHEMICAL IDENTITY & CAS NUMBER	
SIGNATURE:	QUANTITY:
FOR HAZARDOUS MATERIALS PROGRAM USE ONLY:	

APPENDIX 5: 10' Radioactive Isotope Van Layout



APPENDIX 6: Shared Use Equipment List

March 2026

The equipment below is available to ship users per request. Please include a list of the shared use equipment your project requires in the mandatory cruise plan to be completed and submitted to the Skidaway Institute of Oceanography Marine Superintendent at least 15 days prior to your scheduled cruise.

Sediment Samplers

- Single-Spade tube-corer - 30 cm x 7 cm cylindrical core, includes 5 core tubes
- Ocean Instruments Multi-core (MC-400) – Sample Tubes 10 x 60 (cm)
- Standard Ponar Grab – two jaw hinged pivot grab, 23 x 23 (cm) sample area (0.05 m²)
- Large Ponar Grab – 20 x 30 x 60 (cm) sampling area
- Petite Ponar grab 15.2 x 15.2 (cm) sampling area
- Van Veen Benthic grab – two jaw hinged pivot grab for soft sediments, 36 x 28 (cm) sample area (0.1 m²)
- Shipek Bottom Sampler – heavy robust bottom sampler for strong currents and irregular topography, 20 x 20 (cm) sample area (0.04 m²)
- Bottom Lander Frame/Floatation - used for in situ benthic flux experiments
- Large Box corer #1 – 20” x 30” boxes, weight = 1,581lbs w/o boxes, 67” L x 67” W x 93” H
- Large Box corer #2 – 20” x 30” boxes, weight = 1,581lbs w/o boxes, 67” L x 67” W x 93” H

Nets

- Otter trawl – 8.2 m head rope, 1.5-inch mesh STR
- Otter trawl - 3 m head rope, 1.25-inch mesh STR
- Simple Bongo Net – 150 um mesh with 50 cm diameter mouth
- Paired Bongo Net – 50 cm dia., 280 um mesh (n=2) and 950 um mesh (n=1)
- Neuston Net – 1 x 2 x 5 (m), 950 um mesh
- Tucker Trawl - 1 x 4 (m) opening, two nets both 280 um mesh

Sensors

- Transmissometer (25 cm and 10 cm pathlengths) – used on CTD profiler
- In Situ Ultraviolet Spectrophotometer (ISUS) - Optical Nitrate Sensor
- SBE 18 pH probe – used on CTD profiler

Acoustics

- T-RDI 300kHz ADCP – maximum profiling range is 160m
- T-RDI 600kHz ADCP – maximum profiling range is 60m
- Knudsen Chirp Model 3260 for sub bottom data collection (3.5kHz and 12 kHz).
- RJE Underwater Location Beacons – model ULB-362C (37kHz) and model ULB-350 (12 kHz)
- T-Benthos Dive Ranger Interogator– model DRI -267-A- receive frequency 25, 26, 27, 28, 29, 30, 31, 32 kHz, transmit frequency 26kHz. System includes Benthos Transponders – model UAT-376 – depth rating 750m and Benthos Top-Side System – ACU-266
- T-Benthos Pinger Locator – model 275XS (includes topside unit DHA-151). Provides full ocean depth pinger locator and tracker (5-80kHz).
- UDB-9000-M Universal Deck Box LF Band (7-16kHz) – This unit will operate all T-Benthos acoustic releases, transponders, pop-up buoys, and telemetry modems. In addition, this unit will operate with Edgetech/EG&G and University of Rhode Island acoustic releases or transponder in the frequency range of 7-16 kHz.

Miscellaneous

- Thermo Scientific Smart2Pure Water Purification System – Portable system that provides water used for various analytical applications in the laboratory (HPCL, IC, ICP, AAS, TOC, etc.)
- Flow through incubators (3) 1m x 0.75m x 0.5m
- Ductless Fume Hood – ACI carbon filter for acids and organic fumes, FOR carbon filter for aldehydes and organic fumes.
- Trace Metals CTD and Winch – special request form upon request
- MOCNESS 1/4m – (9) 202 μm nets, (9) 64 μm nets, (9) 333 μm nets, filtering and non-filtering cod-ends, PKI integration.

APPENDIX 7: Lithium Battery Policy and Procedures – R/V Savannah

02 April 2026

Purpose

The purpose of this document is to outline the safe handling, usage, storage, disposal and emergency procedures for lithium and lithium-ion batteries aboard the R/V *Savannah* and to define related responsibilities for shore side, vessel crew and science personnel.

Battery Types

Primary or Non-Rechargeable Metallic Lithium Cells

Primary Lithium batteries feature high energy density and long shelf life. They are generally used for smoke alarms, LED lighting, and outdoor devices. However, they are not rechargeable and totally different from Li-Ion batteries. These cells are constructed with metallic lithium. The metallic lithium in a non-rechargeable primary lithium battery is a combustible alkali metal that self-ignites at 352°F/178°C. If the battery is damaged or exposed to water or seawater, the lithium can react, releasing heat and hydrogen gas.

Because of these hazards, damaged, or wet primary lithium batteries should be handled with caution and kept isolated from ignition sources and moisture.

Secondary or Rechargeable Lithium Ion Cells

Rechargeable secondary cells utilize lithium ions that are intercalated into graphite, lithium metal oxides, and/or lithium salts. Unlike primary lithium batteries, they do not contain metallic lithium.

Lithium-ion cells perform best when operated within recommended voltage limits. Deep discharge can cause permanent capacity loss or cell failure. Since lithium-ion chemistry does not have a "memory", you do not harm the battery pack with a partial discharge. Their usable lifespan depends on factors such as temperature, charging habits, and storage conditions.

High temperatures accelerate degradation and increase the risk of failure, so lithium-ion batteries should be stored and operated in moderate temperature environments.

Responsibilities

Marine Superintendent

- Development and dissemination of appropriate guidelines and safety procedures for lithium and lithium-ion batteries
- Provide vessel crew with necessary equipment and training for handling emergencies involving lithium and lithium-ion batteries
- Include appropriate information in cruise manual and pre-cruise forms

Vessel Safety Officer - 1st Mate

- Identify all lithium and lithium-ion batteries stored on the vessel and brought aboard by science parties

- Ensure MSDS's are available for all batteries
- Include lithium and lithium-ion emergency procedures in drills and training
- Provide science parties with lithium battery safe handling procedures as necessary

Science Parties

- Inform UGA/SkIO Marine Operations and vessel crew of type and size of batteries to be brought aboard through pre-cruise form
- Provide VSO and/or Marine Technician with MSDS's for batteries
- Provide VSO and/or Marine Technician with charging procedures as appropriate
- Understand responsibilities during response to lithium battery emergency

Handling and Usage Procedures

The primary hazard associated with both primary and secondary lithium batteries is short circuiting. Short circuiting allows current to follow an unintended path, potentially causing overheating, circuit damage, fire or explosion.

Hazards can be minimized by following the guidelines below:

General Handling

- Always wear safety glasses when handling batteries.
- Remove conductive jewelry items (rings, watches, necklaces, etc.) prior to working with batteries.
- Work in a clean, dry area free of debris, sharp objects, and moisture.
- Cover work surfaces with non-conductive insulating material (anti-static mat).
- Do not force cells into holders or housings. Verify proper fit before installation.
- Avoid applying pressure to the cell casing or terminal cap, as this may damage internal seals and lead to venting.
- Never apply direct heat to the battery case.
- Never touch a cell case directly with a hot soldering iron. When making battery packs, always use cells with factory solder tabs. Heat sinks should be used when soldering to the tabs and contact with the solder tabs should be limited to a few seconds. Inform Marine Technician of any plans to solder batteries.
- Cells and/or batteries should not be exposed to high voltage AC sources or other DC power supplies that could result in subjecting the cells to unanticipated charging or forced discharging currents. Secondary cells should be charged only according to the cell or battery manufacturer's directions, particularly with respect to maximum applied voltage.

Inspection and Condition

- Do not use or store batteries that are dented, deformed, leaking, corroded, or otherwise damaged. These should be properly disposed of in accordance with applicable procedures.
- Physical damage increases the risk of internal short circuits and delayed failure.
- Measure the open circuit voltage of each cell and compare it to manufacturer specifications.
 - An OCV of 0.0 volts may indicate a blown internal fuse (if present) or a

fully discharged/faulted cell.

- After inspection, return cells to their original packaging whenever possible.

Preventing Short Circuits

- Arrange cells to prevent contact between terminals. Do not stack or scatter loose cells.
- Cells should be transported in non-conductive containers or trays with individual compartments.
- All inspection tools (including calipers, rulers, etc.) should be made from or covered with non-conductive material.
- If leads or solder tabs need to be shortened, only cut one lead at a time to prevent accidental shorting. Inform Marine Technician of any plans to solder batteries.

Transportation

- Transport cells in a non-conductive tray or packing designed to prevent movement and terminal contact.
- Secure batteries during transport to prevent dropping or physical damage.
- Cells and/or batteries should not be exposed to high voltage AC sources or other DC power supplies that could result in subjecting the cells to unanticipated charging or forced discharging currents. Secondary cells should be charged only according to the cell or battery manufacturer's directions, particularly with respect to maximum applied voltage.

Storage

- When necessary, open bins are located in the wet lab for the storage of all primary and secondary lithium-ion batteries. If the batteries are too large for the wet lab storage bin, work with the Marine Technician and VSO to locate a suitable storage location.
- Store cells in original containers away from combustible materials.
- The ship's Marine Technician will strap a temperature sensor to the battery and monitor temperature over the ship's network and on a display in the wet lab. The Chief Scientist must provide the manufacturer's maximum recommended temperature.
- Separate fresh and depleted cells and limit the number kept in a single area.
- Avoid crushing or puncturing by not stacking heavy objects on cell containers.

Because of the different chemistries and associated hazards, primary lithium batteries and rechargeable lithium-ion batteries should be stored separately. Keep battery types separated to help ensure proper emergency response, safe handling, and appropriate disposal procedures are followed.

Disposal

Disposal of all lithium and lithium-ion batteries must be in accordance with the University of Georgia's Universal Waste Program. https://fmd.uga.edu/wp-content/uploads/universal_waste_uga_fmd_2018.pdf

- Waste batteries should be stored inside a weather-proof location.
- Batteries are not required to be stored inside a container unless they show evidence of damage or leaks.
- Individual or a container of batteries must be labeled: UGA Waste Battery Start Date.

- Large batteries should be stored on a pallet or in a container for disposal.
- Small batteries should be labeled and stored inside a container.

Emergency Procedures

General Actions (All Lithium Battery Incidents)

- Evacuate and Alert: Leave the area immediately. Lithium fires release highly toxic gases like hydrogen fluoride and carbon monoxide.
- Notify ship personnel. If possible, clearly identify the hazard as a lithium or lithium-ion battery.
- Isolate (If Safe): If the device is small and portable, and you can move it without risk, place it away from flammable materials. Disconnect power at the main breaker if the battery is part of a larger system.
- Ventilate: Open windows and doors to help disperse toxic fumes, but do not remain in the room.

Primary Lithium Battery Incidents

Primary lithium batteries contain metallic lithium, which reacts with water to intensify fire.

- Do NOT apply water to burning lithium metal batteries.
- Use Class D fire extinguishing agents (dry powder).
- If Class D extinguishers are not available, use approved dry agents.
- Do not handle burning or damaged cells directly.
- Allow the fire to burn under controlled conditions if it cannot be safely extinguished.
- If no other means are available to control fire, the battery should be jettisoned overboard.
- After the incident, treat all remaining cells as unstable and isolate them for disposal.

Secondary Lithium-Ion Battery Incidents

Lithium-ion batteries do not contain metallic lithium but can produce intense heat and flammable gases.

- Water may be used to cool and suppress lithium-ion battery fires.
- Be aware of re-ignition risk. Cells can reignite minutes or hours after initial suppressions.
- If safe, disconnect power and remove external charging sources.
- Move the device away from flammable materials only if it can be done safely.
- If no other means are available to control fire, the battery should be jettisoned overboard.
- Monitor the battery after the incident for continued heating or swelling.

For full emergency response see VSO for detailed Emergency Response Plan

References

1. UNOLS Research Vessel Safety Standards, Chapter 9.41 – Lithium Batteries
2. USCG policy letter CG-CVC 20-03 Carriage of Lithium-Ion Batteries on Small Passenger Vessels
3. United States Coast Guard. Safety Alert: Lithium-Ion Battery System Installations
4. United States Coast Guard Research & Development Center – Lithium Battery Fire Hazard in the Maritime Environment

APPENDIX 8: Minor Policy

We do not allow minors to participate in our programs **UNLESS** they meet one of the following 6 predetermined exceptions noted in the UGA policy. Written preapproval by the Institute's Director or Marine Superintendent is required. Those 6 exceptions are:

1. Programs/Activities for Minors enrolled in undergraduate or graduate academic coursework;
2. Events or visits to campus where Minors are supervised by their parent/guardian;
3. Events at the University that are open to the general public or invited guests where parents/guardians are expected to provide supervision of Minors;
4. IRB-supervised research;
5. Minor employees; and
6. University of Georgia employees or students hosting family members, friends, or other guests.

APPENDIX 9: R/V Savannah UAS Policy

v1.1 31 March 2026

The R/V *Savannah* follows UNOLS policy for Unmanned Aerial Systems (UAS) outlined in RVSS Ch.19 and the UNOLS UAS handbook.

Typically, UAS operations off the R/V *Savannah* involve small aircraft or drones less than a few pounds. In this case, the policy is simplified per FAA and UNOLS guidelines. Any science operation requesting drone flights using a small drone (<2kg) must follow the general requirements below in addition to the policies outlined in RVSS Ch.19 and the UAS handbook.

Small UAS General Guidelines (UAS <2kg)

- 1- Pilot must own a FAA small unmanned aircraft certificate. This ensures the pilot can use the part 107 exemption to the more complicated rules in regulations for flying medium to large drones and it ensures the pilot can fly for non-recreational use.
- 2- Drone must be registered with the FAA.
- 3- Fly at a max altitude of 400 feet.
- 4- May fly only during daylight hours and within visual line of sight (30 min before sunrise and 30 after sunrise).
- 5- No flying over people unless it's the pilot or designated flight observer.
- 6- Pre-flight plan required (see below).
- 7- Post flight report available to ship operator and FAA, if necessary. See below.
- 8- Must yield right of way to other aircraft
- 9- Max ground speed of 87 knots
- 10- Follow airspace class requirements (pilot's responsibility).
- 11- Own vehicle insurance and/or sign liability waiver releasing all liability from the vessel owner institution and Captain.
- 12- No operations near a heavily populated area (other boats or inland waters near land and dwellings).
- 13- Drone observer is strongly encouraged to keep a visual on the aircraft at all times.
- 14- Current regulations for drones in the United States and within the U.S. Coast Guard (USCG) prohibit:
 - a. **New Foreign-Made Drones:** Effective December 22, 2025, the **Federal Communications Commission (FCC)** added foreign-made uncrewed aircraft systems (UAS) and their critical components to its [Covered List](#). This prevents the FCC from authorizing, and thus prohibits the import and sale of **new** drone models from several manufacturers. **Impacted Brands:** The ban specifically targets brands from countries like China, Russia, Iran, and North Korea. This includes prominent companies like:

- i. **DJI** (e.g., the **DJI Mini 5 Pro** and **DJI Mavic 4 Pro** are restricted from official U.S. release)
 - ii. **Autel Robotics.**
 - iii. **Aerospace CH UAV Co., Ltd. and JOUAV.**
- b. **Existing Models:** Drones already lawfully purchased or approved for sale before the December 2025 deadline remain **legal to fly** for recreational and commercial use, provided they follow standard [FAA registration and operating rules](#).
- c. **U.S. Coast Guard Specific Prohibitions**
 - i. **Chinese-Made Drones:** The USCG is legally prohibited from operating any Chinese-made drones for official duties.
 - ii. **Restricted Airspace Near Cutters:** Under **14 CFR §99.7**, all drones are prohibited from flying within a "stand-off distance" of **3,000 feet laterally** and **1,000 feet vertically** from any USCG cutter (65 feet or longer).
 - iii. **Security Advisories:** The FAA classifies airspace near USCG vessels and facilities as **National Defense Airspace**. Flying in these areas without explicit approval from the [Coast Guard](#) or FAA can lead to the drone being intercepted, seized, or destroyed. [3, 6, 12, 13, 14]
- d. **Federal Projects:** Drones from "covered foreign entities" (like DJI and Autel) are strictly prohibited for use on projects funded by the Department of Defense (DoD) or other federal agencies.

Medium to Large UAS Operations

Anyone requesting to fly a medium to large UAS off the R/V *Savannah* will need to follow additional requirements per UNOLS and FAA policies and regulations and inform R/V *Savannah* Marine Superintendent well in advance of the cruise (>45 days).

Cited References and helpful links:

UNOLS Unmanned Aircraft System Policy 2021, <https://www.unols.org/document/unols-unmanned-aircraft-system-uas-policy-july-2021>

Unmanned Aerial Systems (UAS) Operations from the U.S. Academic Research Fleet: Operator's Handbook (July 2021), <https://www.unols.org/document/uncrewed-aerial-systems-uas-operations-us-academic-research-fleet-operator%E2%80%99s-handbook>

UNOLS Scientific Committee for Oceanographic Aircraft Research (SCOAR), <https://www.unols.org/committee/scientific-committee-oceanographic-aircraft-research-scoar>

FAA Airspace Classification Interactive Map, <https://www.arcgis.com/apps/webappviewer/index.html?id=9c2e4406710048e19806ebf6a06754ad>

[1] <https://candrone.com>

[2] <https://formacionpoliticaisc.buenosaires.gob.ar>

- [3] <https://seapowermagazine.org>
- [4] <https://thehill.com>
- [5] <https://docs.fcc.gov>
- [6] <https://www.hklaw.com>
- [7] <https://www.theverge.com>
- [8] <https://dronedj.com>
- [9] <https://www.northwestern.edu>
- [10] <https://www.wired.com>
- [11] <https://jvn.photo>
- [12] <https://seapowermagazine.org>
- [13] <https://www.suasnews.com>
- [14] <https://www.airsight.com>
- [15] <https://www.airsight.com>
- [16] <https://research.msu.edu>
- [17] <https://www.nps.gov>
- [18] <https://www.thedronegirl.com>
- [19] <https://pilotinstitute.com>
- [20] <https://cbsaustin.com>

Pre-flight UAS Plan

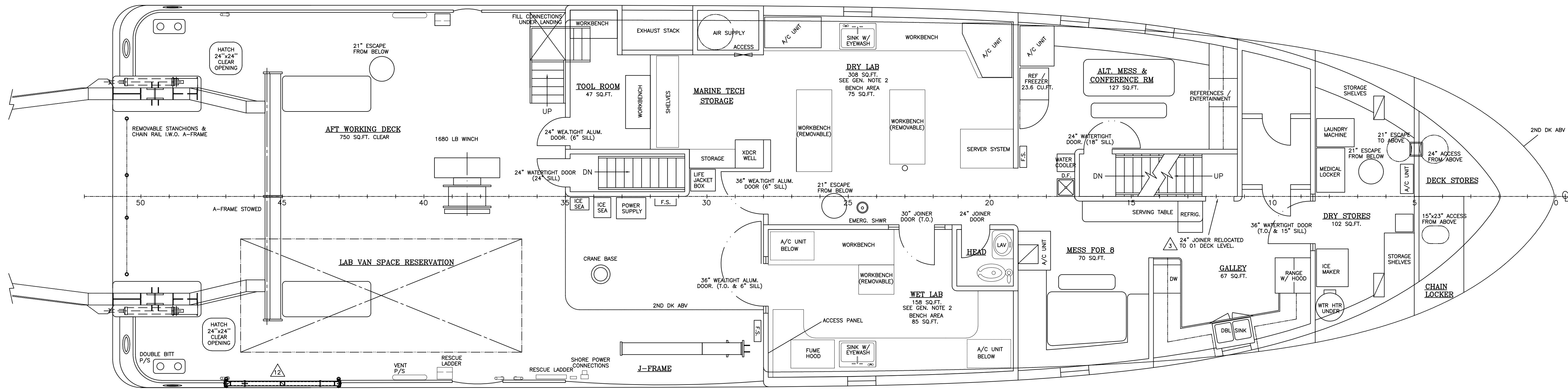
Pilot Name	
Pilot License Number	
Observer Name	
Aircraft Make/Model	
Aircraft Owner	
FAA Registration Number	
Flight Purpose	
Flight Date/Time	
Est Flight Duration	
Est Flight Altitude	
Flight Location	
Aircraft Insurance Information If no insurance please indicate that you waive UGA-Skidaway Institute from any liability related to damages or loss of the UAS.	

Post UAS Flight(s) report

Pilot Name	
Pilot email	
Indicate any deviations from flight plan	
Total Flight Time	
List any abnormal operations encountered	
Damages to UAS? If yes list damages	
Any accidents or loss of UAS? If so explain.	
Any near misses during flight? If yes please explain.	

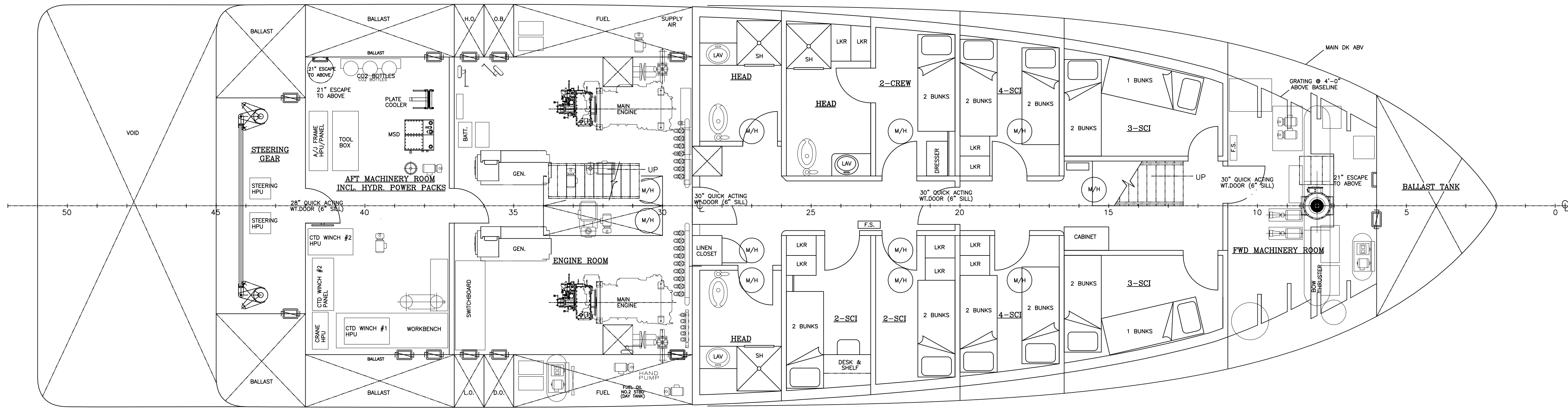
Appendix 10: General Arrangement Drawing

Main deck, lower deck, O1 deck and Pilot House deck arrangements on next page.



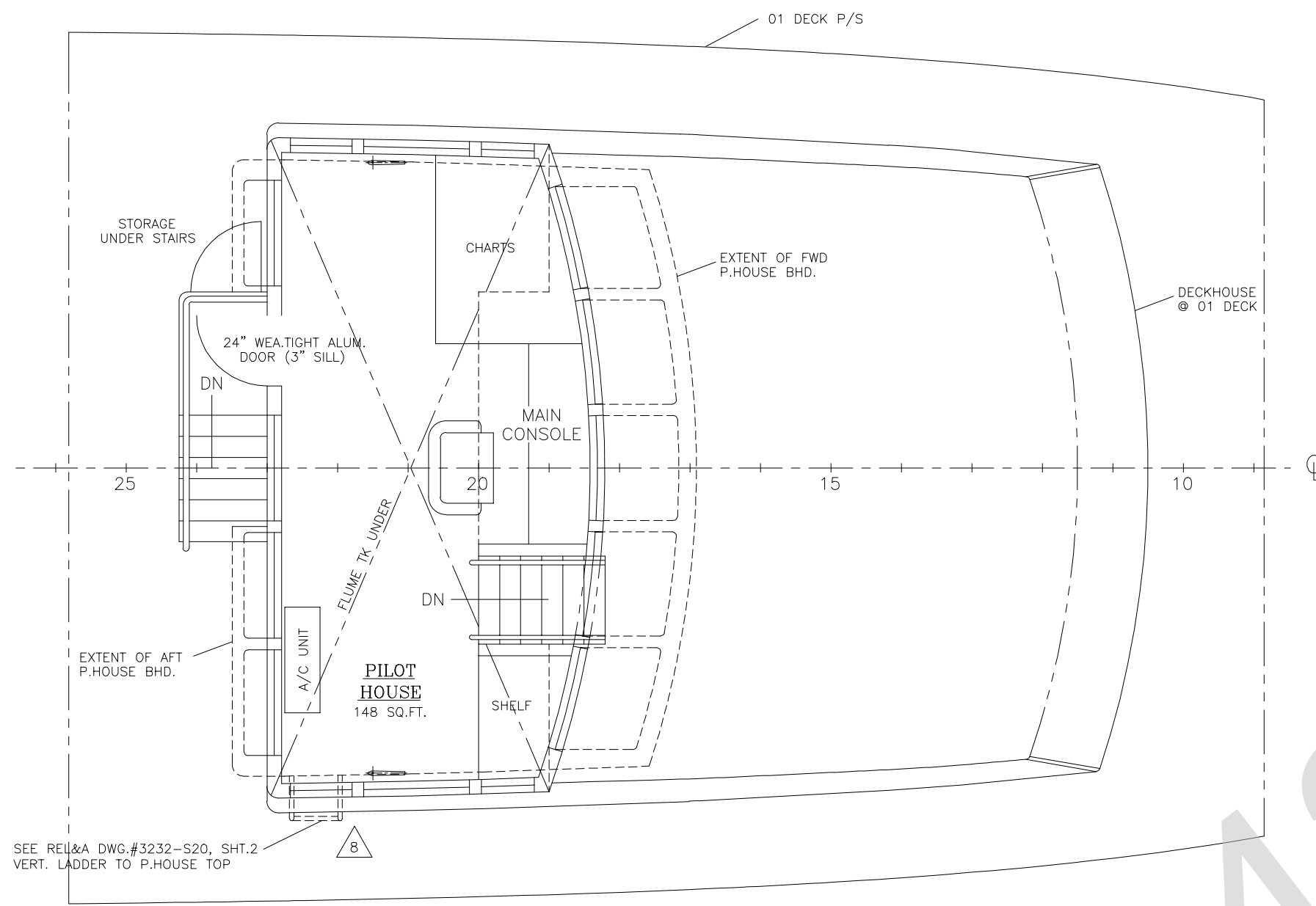
MAIN DECK ARRANGEMENT

SCALE: 1/4" = 1'-0"



LOWER DECK ARRANGEMENT

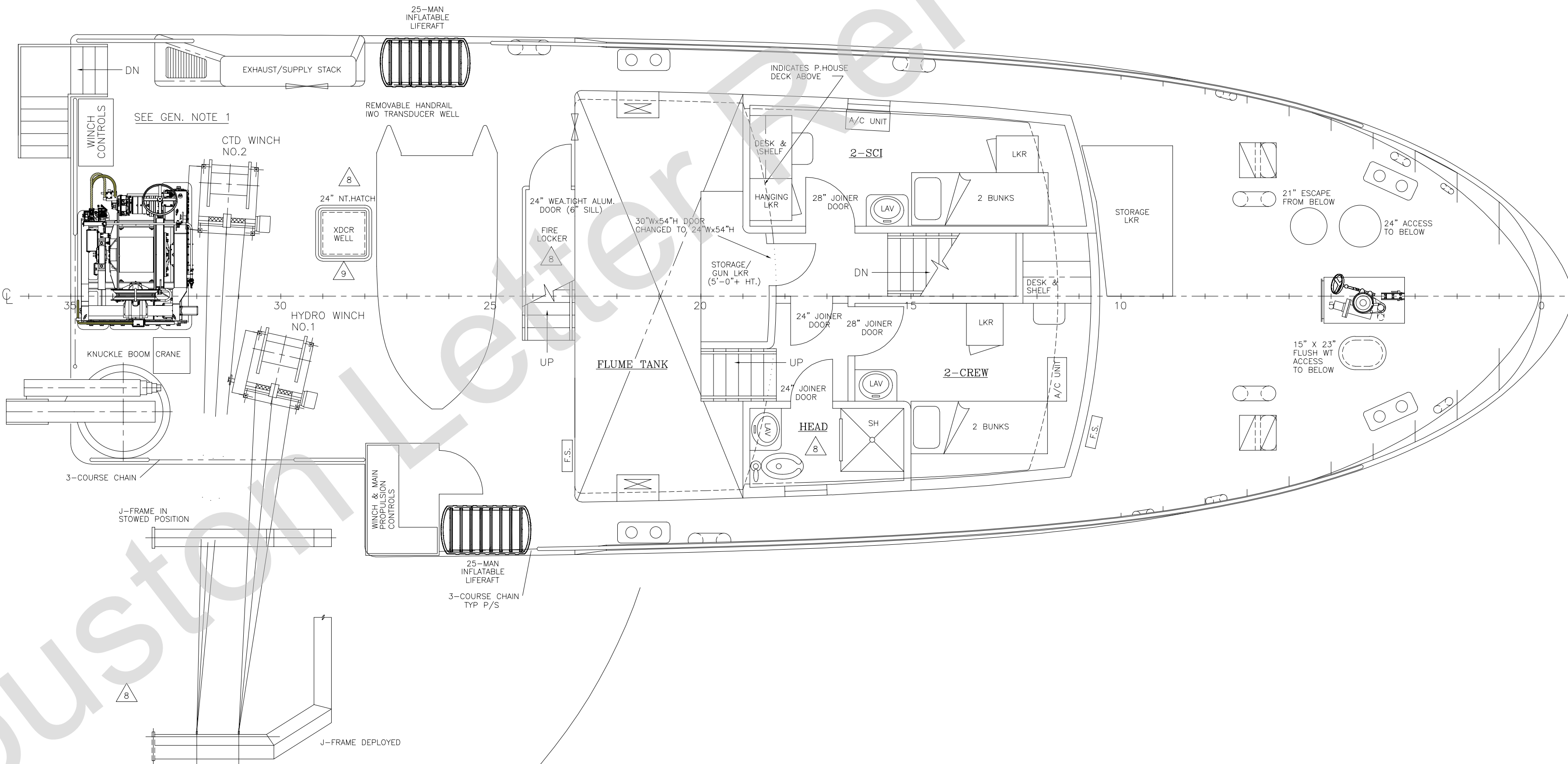
SCALE: 1/4" = 1'-0"



SEE REL & A DWG.#3232-S20, SHT.2
VERT. LADDER TO P.HOUSE TOP

PILOT HOUSE ARRANGEMENT

26'-0" CRANE RADIUS



SEE GEN. NOTE 1

REMOVABLE HANDRAIL
TWO TRANSDUCER WELL

3-COURSE CHAIN

J-FRAME IN
STOWED POSITION

WINCH & MAIN
PROPULSION
CONTROLS

25-MAN
INFLATABLE
LIFERAFT

3-COURSE CHAIN
TYP P/S

J-FRAME DEPLOYED

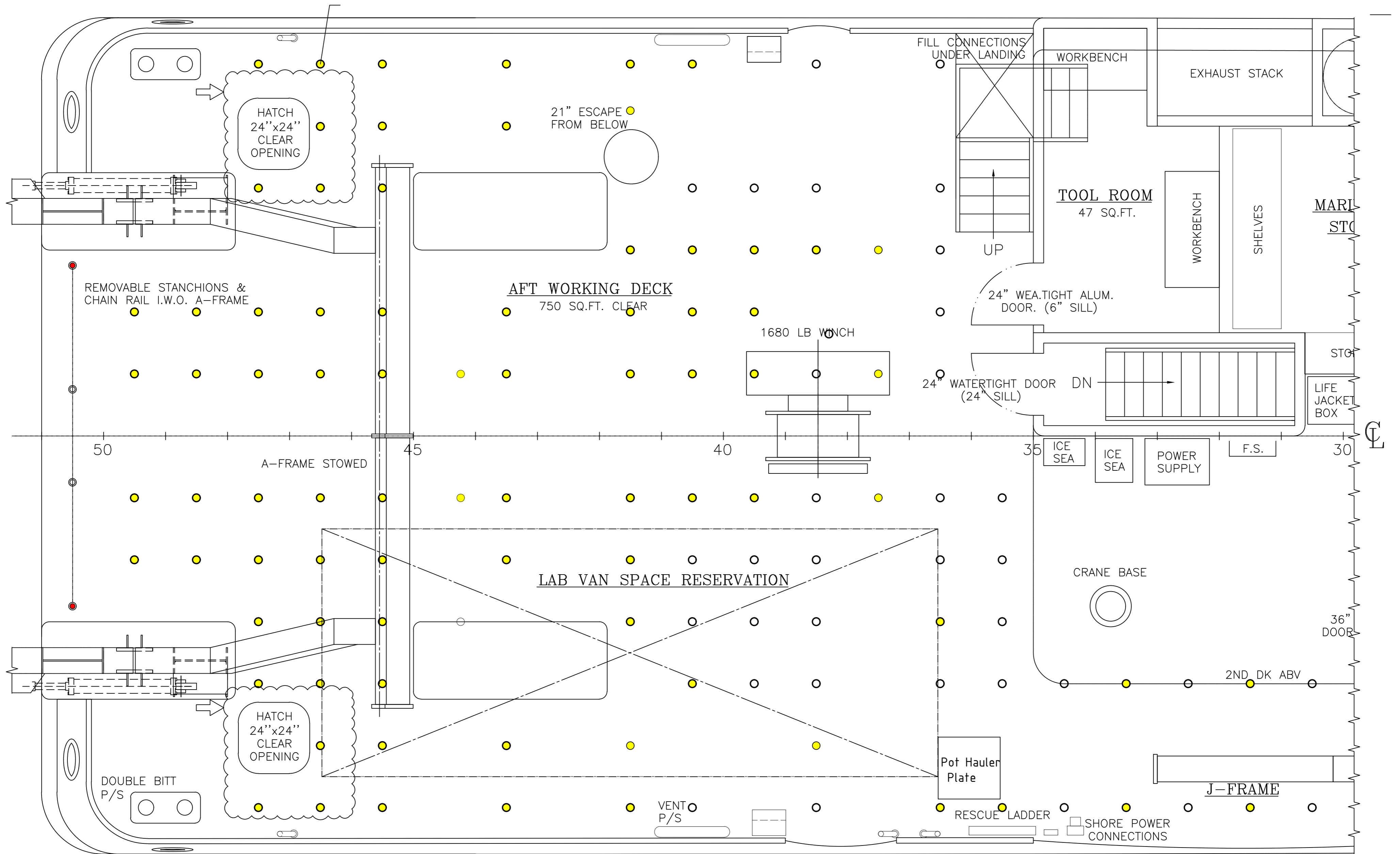
21" ESCAPE
FROM BELOW

24" ACCESS
TO BELOW

15" X 23"
FLUSH WT
ACCESS
TO BELOW

Appendix 11: Main Deck Tie Down Deck Socket Pattern

Main deck, lower deck, O1 deck and Pilot House deck arrangements on next page.



APPENDIX 12: R/V Savannah Internet Use Policy

Updated: 04/15/2026

Overview

The R/V *Savannah* internet use policy outlines the guidelines for using the ship's Satellite Internet. Please visit the [UNOLS Internet Use](#) website for additional information on the Academic Research Fleet policy.

Internet Purpose

The primary purpose of the ship's satellite network is to support the science mission and provide communications to shore for work and vessel related needs. Secondary to this is personal email use to keep in contact with family and others. The network is not intended to be a source of entertainment.

Internet Access

All persons may have access to the internet at sea. In order to use the ship's satellite network users must request access from the ship's Marine Technician. You will be required to provide device name and other identifiers for all devices. The Marine Technician will provide network access and guidance. All users will have a daily data quota (see below) to help ensure the vessel can provide enough bandwidth to all users. Any device not recognized by the Marine Technician will be blocked from the network.

If any video conferencing or other high bandwidth access is necessary for work or the science mission please inform the Marine Technician in advance, so accommodations can be made to ensure the connection is optimal.

Video and audio streaming for personal entertainment will not be permitted.

Individual Data Quota

Under normal circumstances each user is limited to 1GB per day. When a user has reached their daily limit, all devices will be blocked from the network. If the user has reached their data limit, but still needs to access the internet, the ship's PC located in the Conference Room will be available for use and/or you can contact the ship's technician to request more bandwidth.

Devices and Limiting Data Use

Both wired and wireless devices may access the internet. In order to reduce usage and stay within your daily limit it is recommended to:

- 1- Only connect one or two devices to the internet at a time
- 2- Install device updates prior to sailing.
- 3- Disable device automatic updates.
- 4- Turn off cloud syncing.
- 5- Download large files prior to sailing when possible. These include device drivers, manuals, images, and videos.
- 6- Disable auto-video playback features in your browsers.
- 7- Set device to low data mode when possible.
- 8- When not using a device disconnect it from the network.

Below are procedures to limit data usage on your various devices. These include steps to disable updates, turn on monitoring, limit image loading, prevent auto-play video, etc.

Microsoft Windows 10

- Disconnect from ship's internet when not in use
- Disable Background Apps
 1. Open **Settings**
 2. Click on **Privacy**
 3. Scroll down to **Background Apps** and turn off
- Set up a Metered Connection
 1. Open **Network & Internet** settings
 2. Find your wireless connection and click on **Properties**.
 3. Enable **Set as Metered Connection**.
- Set a Data Limit
 1. Open **Settings**
 2. Click on **Network & Internet**
 3. Find your wireless connection and click on **Data Usage**.
 4. Enter your Data Limit

Microsoft Windows 11

- Disconnect from ship's internet when not in use
- Disable Background Apps
 1. Open **Settings**
 2. Click on **Apps & Features**
 3. Scroll down to the app you want to disable, select **More Options**

4. Click on **Advanced Options**
 5. Go to the **Background Apps Permissions** section
 6. Change your permissions
- Set up a Metered Connection
 1. Open **Settings**
 2. Click on **Network & Internet**
 3. Find your wireless connection and click on **Properties**.
 4. Enable **Set as Metered Connection**.
 - Set a Data Limit
 1. Open **Settings**
 2. Click on **Network & Internet**
 3. Find your wireless connection and click on **Data Usage**.
 4. Enter your Data Limit

Apple MAC OS

- Disable Wi-Fi when you are not using it.
- Disable iCloud and Dropbox
- Use the Network tab in Activity Monitor to view internet usage.

Apple iOS

- Disable Wi-Fi when you are not using it.
- Turn on Low Data Mode
 1. Go to **Settings** and tap **Wi-Fi**
 2. Tap the Wi-Fi network that you're connected to
 3. Turn on **Low Data Mode**

What to expect in Low Data Mode:

- Apps will stop using network data when you are not actively using them.
- Background app refresh is turned off.
- Automatic downloads and backups are turned off.
- Services such as iCloud Photos pause updates.

Android

- Disable Wi-Fi when you are not using it.
- Turn off auto-sync for your Google Account
 1. Open **Settings**
 2. Go to **About Phone** and tap **Google Account**
 3. Click on **Account Sync**
 4. Tap an item to turn sync off
- Restrict App Background Data
 1. Go to **Settings** and tap **Data Usage**
 2. Tap on an app

3. Enable **Restrict App Background Data**

Monitoring

In order to provide the best possible internet service for all users, network usage is monitored by the Marine Technician. In addition, all internet traffic across our network is monitored by our satellite provider and the UNOLS host institution (SCRIPPS) who manages the Academic Research Fleets Satellite communication systems. Reports are generated and provided to the UNOLS office.

Abuse

Failure to comply with this policy may result in the loss of internet privileges.

Support

If you have any questions, please contact the R/V *Savannah* Senior Marine Technician Morgan Hudgins (morgan.hudgins@uga.edu) or Marine Superintendent John Bichy (jbichy@uga.edu).