CAPE FEAR COMMUNITY COLLEGE

R/V CAPE HATTERAS

Cruise Manual

The Seagoing Experience aboard the Research Vessel

CAPE HATTERAS

CRUISE MANUAL

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I. INTRODUCTION

The R/V (Research Vessel) CAPE HATTERAS, owned and operated by Cape Fear Community College, serves as the ocean training vessel for the College's Marine Technology curriculum students. Additionally, the ship is available for oceanographic research use through charters by outside agencies.

Since 1965 Cape Fear Community College has held the distinction of operating its own seagoing training vessel for its Marine Technology students. This specialized, adventurous undergraduate training, not available elsewhere in the country, is held in high esteem by employers in the marine science field.

The adventure of every voyage must begin with proper planning and preparation. This manual is provided to help ensure that your time spent aboard the R/V CAPE HATTERAS is safe, enjoyable, and educationally enriching.

II. SHIP DESCRIPTION and SPECIFICATIONS

The CAPE HATTERAS is a steel, twin screw (with controllable pitch propellers), diesel engine-propelled, displacement hull, oceanographic research vessel.

Vessel Specifications:

Built: 1981 by Atlantic Marine Ship Builders, Fort George Island. FL
Registration Number: NC-9072P
IMO Number: 8023541
Radio Call Sign: WDH2987
Classification: by American Bureau of Shipping as A1 AMS Research Vessel
U.S. Coast Guard Designation as Oceanographic Research Vessel
Hull: Steel
Length Overall: 135 feet (41m)
Beam: 32 feet (9.7m)
Draft, Mean Displacement: 10 feet (2.7m)
Displacement, full load: 640 long tons
Gross Tonnage: 296 GRT, 473 ITC
Net Tonnage: 201 NRT, 141 ITC
Speed: Cruising - 9 knots
Full - 12 knots
Fuel Capacity: 28,695 gallons
Fresh Water Capacity: 6,000 gallons
R/O Water-making Capability: 40 gallons/hour
Cruising Range: 6,000 miles
Endurance: 25 days
Complement: 27 (8 crew, 1 instructor, 18 students) (or 8 crew, 19 scientists/technicians)
Main Engines: Twin Caterpillar diesels, Models 379TA, total 1130HP, Pay and Brinck clutch, controllable pitch propellers.
Ship's Service Generators: Two diesel Caterpillar Model 3406T, 1800 RPM, 175 kW each, primary power 480 VAC, 3 phase, 60 cycle
Secondary Power Voltage: 120 VAC single phase (limited power)
Clean Power Scientific Use: 5.0 KVA transformer bank connected delta/delta 120V, single phase
Refrigerated Space: Walk in freezer and chill box provide 200 $ft.^3$ each for ship stores
Rescue/Work Boat: Ribcraft, 19' w/90HP Mercury outboard – 8 person capacity

Safety Equipment

2 each, 25-Person Switlik Ocean Service Inflatable Liferafts
50 Type I PFD's, 6 Type IV PFD's
30 Stearns immersion suits
EPIRB, Category I - McMurdo
EPIRB, Category II - McMurdo
Search and Rescue Transmitters (SARTs), 2 each

4 fireman's outfits with self-contained breathing apparatus
30 each, 5 and 10 minute breathing apparatuses
Fixed automatic firefighting system for engineroom, galley, and boatswain's locker
Fire and smoke detection system: Consilium
Firemain system: 9 stations each with 50' of 1½" hose and all purose nozzles

Deck Service Equipment

Working Deck Area: 650 sq. ft. open, 240 sq. feet covered
Threaded deck bolt downs: 100 x 1"

Main Trawl Winch: Markey hydraulic (DUSH-8) located on 01 deck with control console on bridge; lined band drum brake and positive jaw-type clutch; diamond level wind.
Line pull: 17,000 pounds
Line speed: hoist 6,000 pounds payload (water weight), average speed 50 meters/minute
Wire: 8,000 meters of ½" 3 x 19 torque balanced
CTD Winch: Markey hydraulic (DUSH-5) with slip-ring capabilities, located on 01 deck
Line speed: 50 meters/minute average. Wire: 9,000 meters of EM cable, 0.322 inch

Portable Electronic Winch: Markey (COM-7) electric powered portable on 01 deck
Line speed: 100 feet/minute
Wire: ¼ inch hydro wire
Load: 2,118 lbs.

Deck Load Handling Equipment:
- Alaska Marine Crane, located on 01 deck aft with 24,000 lbs. capacity at 10 feet, with maximum extension of 2,610 lbs. at 40 feet.
- Alaska Marine Crane, located on 01 deck forward of deckhouse, starboard side, with 2,500 lb. capacity at 27 feet.
- J-Frame, located on main deck, starboard sided, with 3,000 lbs. capacity
- Stern A-Frame, located on main deck, with 15,000 pounds capacity

Navigation and Communications Equipment

Equipment located on the bridge:
Loran C, Furuno LC-90 Mark II
Radar, Furuno FAR-2xx7 (2)
Doppler Speed Log, Furuno DS-80
Echo Sounder, Furuno- FCV-292
Wind Direction-Speed, RM Young (P/S)
GPS, Differential; Furuno GP-90
GPS, Differential; Northstar Navigator 800
GPS, Differential; Northstar 952X
Gyro Compass, Sperry MK-37
ADF, Simrad Taiyo TD-L1550 (VHF)
AIS, Furuno FA100
Barograph, Belfort

Nav-Tex receiver, Furuno NX-300
Magnetic compass, Cassens & Plath, Type 21
VHF radios (4)
SSB radio, SEA 222
SSB radio, Icom M802
Loudhailer, Standard Horizon VLH-3000
Barometer, NWS90-16
Anemometer, R.M. Young
Satellite communications system KVH TracPhone V3-IP

Equipment located in the electronics lab:
Gyro Compass, Sperry MK-37
GPS, Northstar 6100i

Scientific Instrumentation and Equipment

Used for student training; prospective charterers should inquire with CFCC regarding availability of specific items.

Seawater Sampling and Analysis
SBE 32 Carousel Water Sampler: 12 bottle capacity
12-1 Niskin bottles
SBE 32 Carousel Water Sampler: 24bottle capacity
12-1 Niskin bottles
Sippican MK-12 XBT System (probes available at cost)
Acoustic Doppler Current Profiler, RDI 600kHz (70 m maximum profiling depth)
DAS Software
TRANSECT Software

Bottom Sampling Equipment
Box Corer, Ocean Instruments Mark III (50 x50 cm box)
Box Corer, Ocean Instruments Soutar (modified with steel frame)
Gravity Corer
Shipek Grab
Basket dredge
Otter trawl

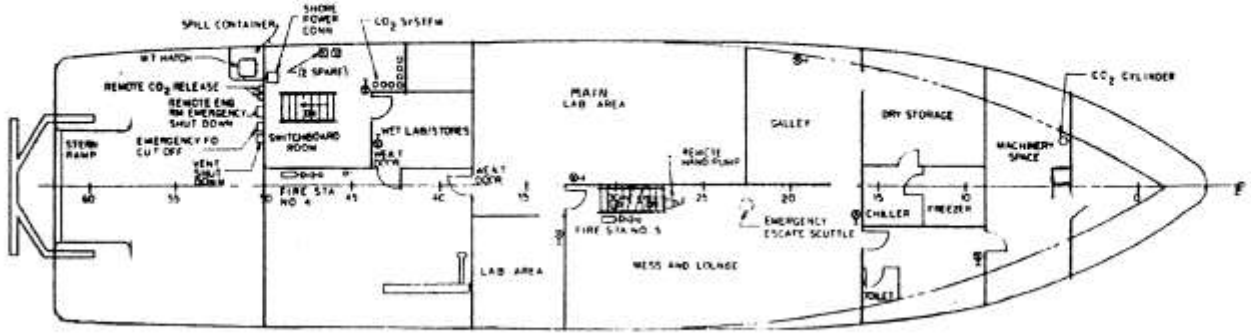
Echo Sounding and Seismic Equipment
Hull-mounted 3.5 kHz transducers (array of 9 each)\\
Hull-mounted 12 kHz transducers (2 each)
Knudsen Chirp 3260 Echosounder

Miscellaneous Equipment
Neuston net
Tucker trawl net

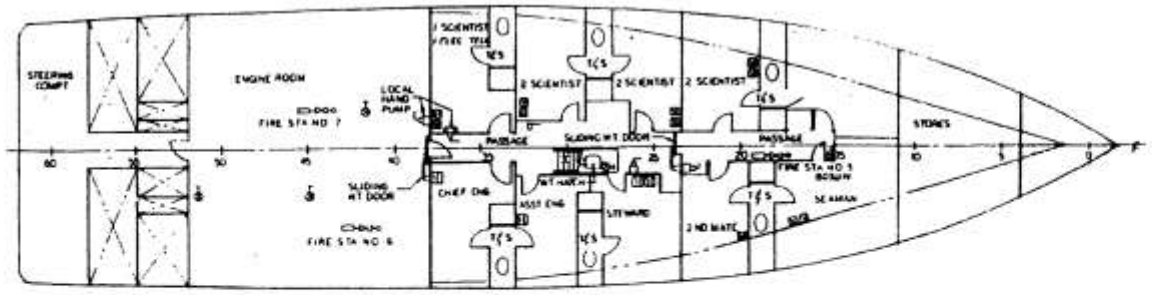
Drying Oven (16″ x 12″ x 16″ inside dimensions): range 40° – 250°C
Autoclave (8.5″ x 8.5″ x 16″ inside dimensions)
Freezers (1 ea. chest freezer permanently installed in main lab)
Simrad/Taiyo Model TD-L1550 VHF Automatic Direction Finder – all channels
Secchi discs
Magnetometer, Geometrix
Side-scan sonar, Hypack multibeam
Sub-bottom profiler
ROV, Seabotix

Shipboard Computer System
The following instruments/sensors are monitored continuously through the cruise. Data are stored in comma and quote delimited file format on IBM compatible media.
Date & Time (GMT)
Differential GPS
Gyrocompass Heading
Air Temperature
Barometric Pressure
Relative Humidity
Wind Speed & Direction (RM Young anemometers, port & starboard)
Photosynthetically Active Radiation (QSR-2200 Scalar PAR Reference sensor- Biospherical Instruments)
Sea Surface Temperature (SeaBird SBE 21 Flow-Thru system w/ remote temp. sensor)
Sea Surface Salinity (SeaBird SBE 21)
Sea Surface Fluorescence (Turner fluorometer with data as voltages)
Water Depth (shallow)
Water Depth (deeper with 3.5 and 12 kHz transducers)

'01' DECK
STACK
LIFERAFT
2 SCIENTIST
PASSAGE
1 ST MATE
MASTER
CHIEF SCIENTIST
RESCUE BOAT
FIRE STA NO.2
FIRE STA NO.1
'02' DECK
PILOT HOUSE
CONSOLE



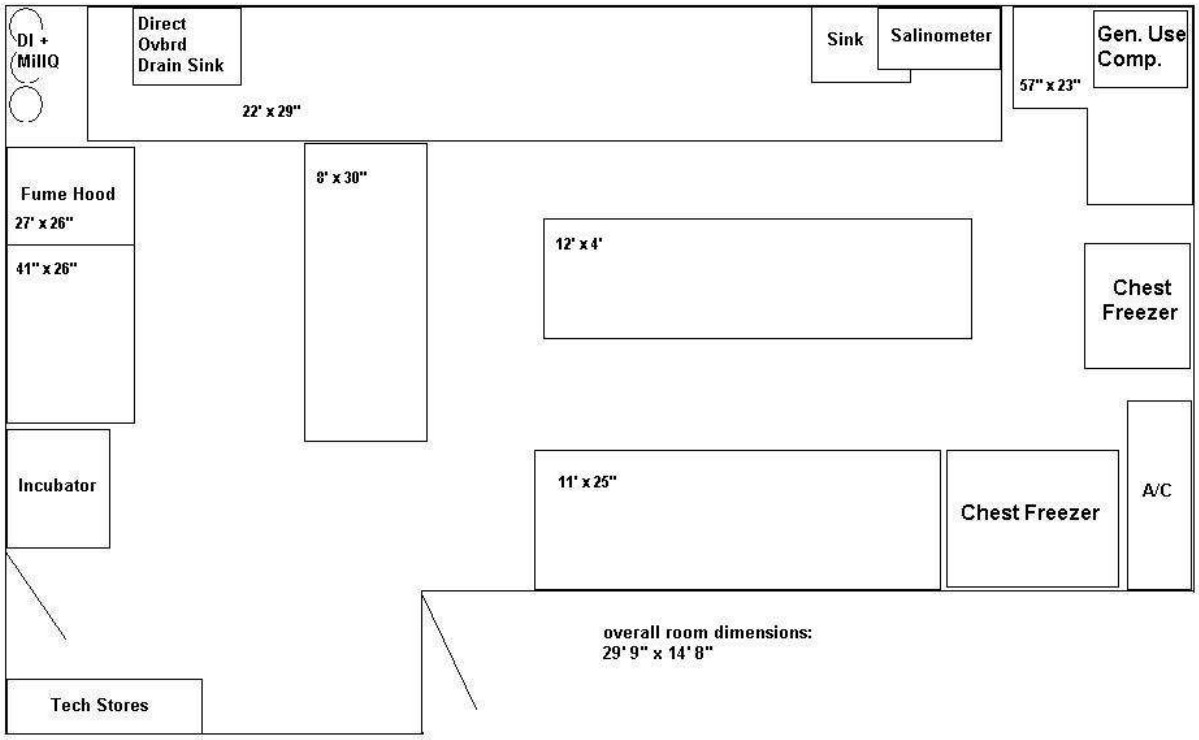
MAIN DECK



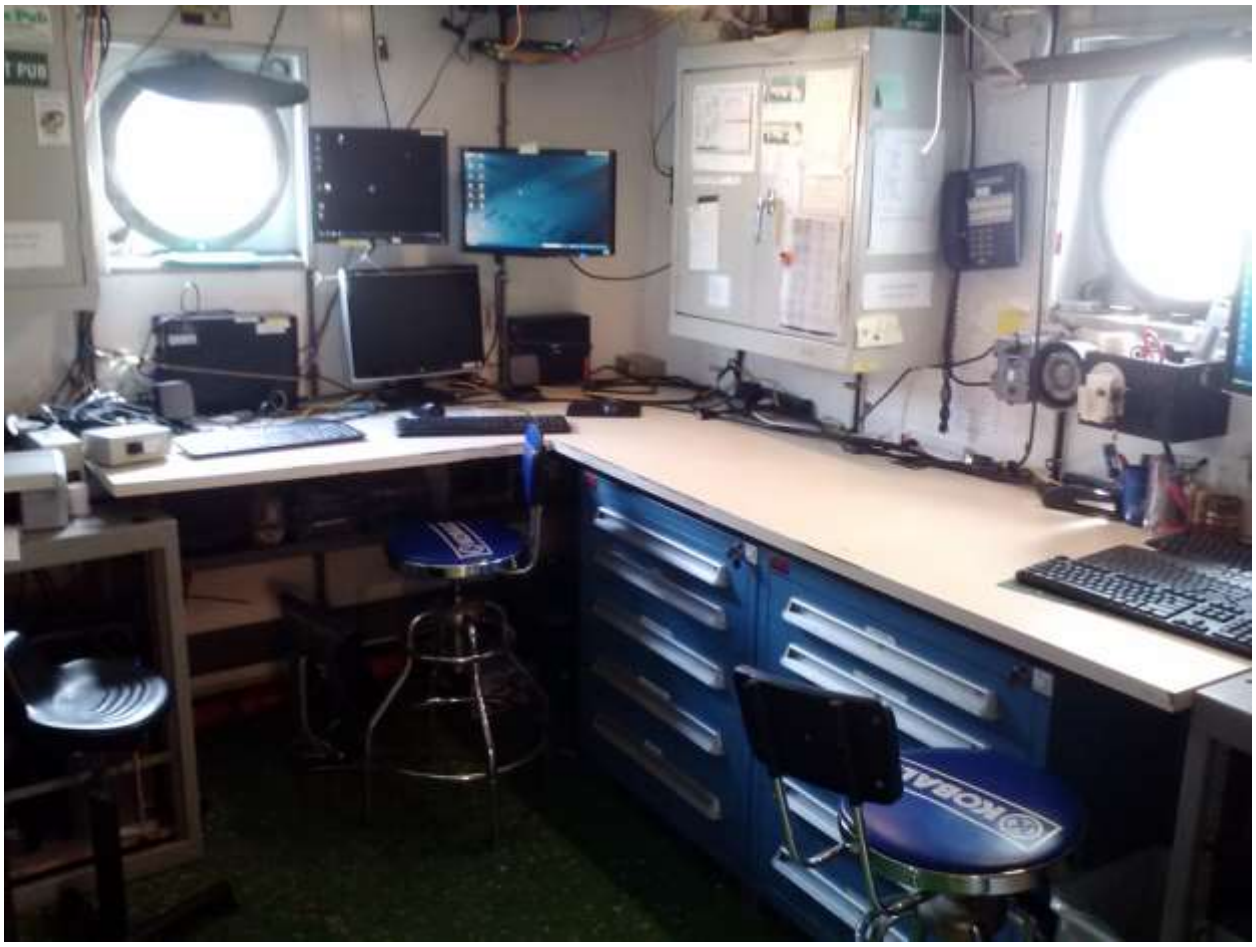
LOWER DECK

Ship dry laboratory

Dry Lab dimensions



Technician's Lab



III. **PLANNING FOR YOUR CRUISE**

1. Before embarking on a student training voyage, the Cruise Supervisor will provide students with a course syllabus document, which serves as a cruise prospectus. This contains:

A. A course and project description
B. Prerequisite, co-requisite, textbook, and course hours information.
C. Conduct requirements
D. General safety requirements
E. Evaluation and grading criteria
F. Description of student duties and assignments.

2. **What to pack?**

A. Clothing: try to pack lightly, but be aware that there are no machine laundry facilities aboard. Apparel should be suitable for working on deck (will be subject to occasional oil or grease stains). Keep in mind that long sleeved-shirts and long pants offer better sun and exposure protection. A hat is recommended for sun protection, (and for warmth in cold conditions). If a port call is scheduled, pack a nice liberty outfit. Offshore temperatures can vary greatly from those ashore. For any season except summer, don't forget jackets, sweatshirts, or sweaters.

B. Foul weather gear: for working in wet conditions, a raincoat, rain pants, and rubber boots or galoshes are advised.
C. Footwear: no open-toed shoes are permitted. Sturdy sneakers, topsiders, or work shoes are recommended. Consider steel-toed work shoes; though not required, they provide an extra margin of foot safety when working on deck.
D. Linen: clean mattress covers are provided, but students are advised to bring their own sheets, blankets, and pillows. Sleeping bags are a common, popular option. Don't forget to bring a bath towel and washcloth or two.
E. Toiletries: bar soap is provided aboard but don't forget your toothbrush and paste.
G. Medications: any prescription drugs must be reported to the cruise supervisor.
If you are prone to motion sickness, plan to bring some form of medication; use it conservatively, and only as directed by the product maker. For many people these medicines are more effective is started before the ship gets underway. A little background information about this malady follows:
Seasickness is caused when the minute inner ear organs that enable a human to balance are disturbed by the motion of the boat swaying and pitching. This movement sets off alarm signals to the brain causing nausea, headache, dizziness, and sometimes vomiting. Most seafarers (some even with years of experience) suffer some degree of this malaise at one time or another, often during the first few hours of the trip, or during rough sea conditions. It can be intensified by the lack of fresh air and inactivity. Looking on the bright side, the body adapts after time. Fortunately, several remedies can be taken before setting sail. Pills can be obtained over the counter which help most people by sedating the balancing organs. The pills can cause drowsiness and should be taken with care. Some people find special wrist pressure bands to be effective. There are also stick-on Scopolamine patches that can be worn on the skin behind the ear, but these are obtained by doctor's prescription only. You can often avoid seasickness by staying busy and keeping your mind occupied with any activity that will keep you above decks. Look at the distant horizon rather than the water close at hand. Take deep breaths and drink plenty of water. The worst thing that a person can do is go below decks with no land or horizon to look at. Reading or staring at an object sometimes will hasten the onset of seasickness. If you are seasick and can't bear it anymore, lie down on your back with your eyes closed. This will greatly reduce the affects. Take heart in knowing that YOU (like the millions of seafarers who have "paid their dues" before you) WILL ADJUST in short time. It is imperative however, that when you are under the weather, you must maintain your body fluid level. There is always an abundant supply of drinking water, Gatorade, fruit juices, and popsicles available.
H. Fishing rod/reel and tackle. On some voyages, time may be allotted for scientific fish collection using angling equipment.
I. Other suggested items to bring include:

- Camera
- Sunscreen, sunglasses
- Binoculars
- Flashlight
- A good book or two
- Sodas, candy (these not stocked in ship's grocery stores)
- Walkman or Ipod
- Picture ID and currency

IV. **SHIP PERSONNEL**

As shown on the ship's specifications above, 27 is the maximum complement of people carried aboard the CAPE HATTERAS. This normally consists of 8 crewmen, 1 instructor, and up to 18 students, scientists and technicians.

The crew, which is in charge of running and maintaining the ship, consists of:

1. The Captain: responsible for the overall safe and efficient operation of the ship. He stands the 6-12 (AM and PM) bridge navigation watches. He ensures that the crew performs their duties in a competent and seamanlike manner. He works with the instructor (or Chief Scientist) to coordinate the training and scientific missions of the vessel.
2. The Chief Mate: stands the 12-6 (AM and PM) bridge navigation watches. He is 2nd in command of the ship and reports to the Captain on matters of ship personnel performance, supplies, maintenance, repairs, and emergency duties.
3. The Chief Engineer: responsible for the safe and efficient operation of the ship's propulsion plant and all its auxiliary machinery and equipment. In addition to the main engine, this includes generators and electrical systems, hydraulics for deck machinery systems, ship's heating, refrigeration and air conditioning systems, the salt water piping system, and ship's electronics. He also stands the 12-6 engineroom watch.
4. The First Assistant Engineer: works under the supervision of the Chief Engineer in the performance of ship's engineering duties. He normally stands the 6-12 engineroom watch.
5. The Electronics/Scientific Support Technician: works with the instructor (or Chief Scientist) in the conduct of the oceanographic mission for the voyage. This entails assisting in the provision, stowage, and use of all scientific equipment, supplies and instrumentation. Student training assistance is also provided by the Technician.
6. The Deck Utility Crewman: works with students and scientists in a wide range of instructional support capacities.
7. The Boatswain: in charge of deck maintenance throughout the ship. This entails linehandling, anchoring, outrigger handling, stowage of deck gear, and maintaining order and cleanliness throughout the ship at all times.
8. The Ship's Cook: prepares and serves 3 hot, appetizing meals daily. The Cook also inventories, procures, and stows all foodstuffs and galley supplies, as well as maintaining cleanliness and order in the galley and food storage areas.
9. The Cruise Supervisor/Instructor, on CFCC Marine Technology training voyages, is in charge of student training. This person assigns watches (navigation, meteorological, and scientific) and other duties to students, and provides instruction in accordance with the mission for the voyage.

V. **SAFETY**

1. **General:** The seagoing environment is inherently a dangerous one, and at times can be harsh, cold, and challenging. Everyone aboard must maintain a keen awareness of this reality, and accordingly conduct themselves in a safe, clearheaded and mindful manner. Safety considerations have the highest priority in the planning and conduct of all underway activities. CFCC students will have received some safety orientation during shoreside classes prior to embarking on a voyage; this instruction continues in the form of an extensive safety indoctrination meeting held prior to departing. Shortly after departure, before reaching the ocean, a rigorous fire and emergency drill is conducted. Everyone aboard has an active

role in contributing to emergency response; during the drill, these duties are performed in simulations of fire, abandon ship, man overboard, and evacuation from quarters scenarios.
2. **The Station Bill:** Immediately upon reporting aboard, all hands should read and become thoroughly familiar with the ship's Station Bill posted in the galley.
It provides detailed emergency procedural instructions. Included on the Station Bill are ship's whistle and general alarm signals that are sounded synchronously for emergency situations and drills. Three general alarm bells are located within the ship so as to be audible in all areas. The signals are as follows:

Situation	Signals
Fire and Emergency	Continuous ringing for a period of at least 10 seconds
Abandon Ship Blast.	More than 6 short blasts followed by one long
Man Overboard	Three prolonged blasts (each of 4-6 seconds' duration.)
Dismissal from Stations	Three short blasts

During the fire and emergency / abandon ship drill conducted shortly after departure, all hands will attire themselves in PFD's, perform duties as assigned on the station bill, and be instructed in response techniques for a wide variety of emergency scenarios.
3. **Evacuation from quarters**: in the event of an emergency, personnel must evacuate from inside spaces of the ship in an orderly and expeditious manner.
There are at least 2 routes available for evacuating all student berthing and working areas. When evacuating the lower deck berthing areas, the engineroom route option should be the 2nd choice, in the event that the main route is blocked. When reporting aboard and having been assigned your cabin space, all hands shall become familiar with these escape routes. Self-contained breathing apparatuses containing 5-minutes of fresh air are provided at every bunk in the lower deck cabin spaces. The use of these devices is demonstrated during the emergency drill.
4. **PFD's**: Personal Flotation Devices, or life preservers, are accessibly stowed in various locations around the ship. These are USCG-approved "Type I" preservers, intended for offshore use, and capable of turning an unconscious person face-up in the water. Each one has an attached whistle and a personal marker light. All hands will be attired in PFD's during drills and in the event of an actual emergency. PFD Locations:

1 per bunk in every sleeping cabin
20 in the locker on the aft starboard side of the 01 deck.
4 in wheelhouse

Additionally, there are six 30-inch life rings (Type IV PFD's) intended for use in man overboard recovery operations. Also carried are 30 immersion, or "survival" suits. 20 of these are stowed in the locker on the aft starboard side of the 01 deck . They are designed to minimize body hypothermia in an abandon ship situation. Except in hot summer conditions when water temperatures are above 80°F, instruction will be provided on how to utilize these suits.

5. **Abandon Ship Situation:** Two US Coast Guard-approved, annually-inspected 25-person ocean service inflatable liferafts are ready to deployed in the event it ever becomes necessary to abandon ship. They are fully equipped with food and drinking water sufficient for 2 weeks, distress flares, pumps, paddles, fishing kits, bailers, sponges, flashlights, matches, and an additional array of ingeniously designed survival equipment. A CG-approved, NOAA-registered 406 MHz Category I EPIRB (Emergency Position-Indicating Radiobeacon) is also ready for immediate use. Its signal, which includes the name of our ship and its location, is speedily relayed by satellite to the nearest Coast Guard rescue facility.

6. **Man Overboard Situation:** All hands should be alert to the potential for falling overboard, and strive to avoid being in a vulnerable position. Specifically:
never straddle or sit upon railings or gunwales. When working with over-the-side oceanographic equipment, especially when the stern gear deployment area is open, work vests or PFD's must be worn; at these times, extra care and vigilance are vital. Be aware that when feeling seasick or fatigued, there is a heightened risk of loss of balance, which when combined with irregular ship motion, can suddenly pitch an unwary victim over the side. And never even think of "relieving yourself" over the side. This believe it or not, has statistically been shown to be the top cause for man overboard occurrences. Anyone who witnesses or is made aware of a "man overboard" incident must take immediate action consisting of:

A. Hail the bridge navigation officer directly or via the intercom in the lab stating when and over which side the person fell.

B. Throw a Type IV PFD lifering and strobe light over the side as close to the victim as possible. Do not take time to uncoil the lifeline.

C. Keep a sharp lookout on the victim (or at night, on the strobe light). Enlist the aid of as many shipmates as possible in accomplishing this task.

D. Stand by to provide assistance as directed by ship's officers for bringing the victim back onboard.

The Captain may elect to sound 3 prolonged blasts on the ship's whistle and general alarm, as a way to summon all available personnel to assist in the recovery process.

7. Fire Situation: Notwithstanding that fire prevention is our best strategy to obviate the need for firefighting, we must be ready to deal quickly with a fire should it ever occur. To this end, key crew members have undergone intensive US Coast Guard-approved firefighting training. A firemain system provides water to 7 fire stations, each equipped with 50-foot lengths of 1 ½ inch hose and nozzles. Any location on the ship can be reached with at least two of these fire hoses. Four fireman's outfits complete with full turnout protective gear and self-contained breathing apparatuses are ready for use in the fireman's locker. Carbon dioxide and dry chemical hand portable fire extinguishers are strategically located throughout the ship. An automatic CO2 gas extinguishment system is provided for the engineroom. A special alarm consisting of a steady series of 3 loud, high-pitched, one-second beeps signifies that this system has been activated. When this alarm is heard, personnel should evacuate the lower deck berthing areas, avoiding the engineroom. Additionally there are automatic extinguishment systems in place for discharge into the galley and the paint locker.

8. **Additional Safety Guidelines:**

A. Always open and close **doors and hatches** with extreme care. Ship motion may cause an unattended or unsecured door to slam violently, endangering an unwary person positioned near the opening. This applies especially to the big walk-in cooler and freezer doors. When

transferring foodstuffs or ice to or from these boxes, use the custom-spliced securing lanyards to keep the doors open.

B. **Chairs** not permanently mounted to the deck must be secured to a fixed ship structural member, especially if there is considerable ship motion. When seated, always keep your feet on the deck.

C. **Slips, trips, and falls** are all too common aboard ship. For this reason:

i. Do not run aboard ship.

ii. Avoid skylarking and horseplay.

iii. Use handrails on ladders and stairs; on vertical ladders, face the rungs.

iv. Remember the ancient, timeless seagoing safety adage: "One hand for yourself, and one hand for the ship", i.e. always be positioned so that you can steady your balance by holding on to a railing or other sturdy ship's structural member.

D. Report any perceived unusual situations to a ship's officer, e.g. smoke, electrical smells, unsecured objects, leaks, water where it should not be, a distressed shipmate, etc. In this manner, all hands contribute to a vigilant ship demeanor.

E. No open flames, such as from matches, are permitted inside the ship.

F. Beware of flammable materials (bed linen, reading material, tissue, etc.) making contact with light bulbs.

VI. **RULES AND REGULATIONS.**

For the safety and comfort of everyone aboard, the following rules must be followed, both when underway and alongside the dock.

1. **Alcohol consumption and possession are prohibited**. The CAPE HATTERAS is a strictly "dry" ship.

2**. Illegal drug use and possession are prohibited**. This "Zero Tolerance" policy is strictly enforced. A person attempting to violate this policy not only endangers himself and his shipmates, but, in the event of a US Coast Guard (or other law enforcement agency) search and discovery of contraband substances, the entire ship can be seized by the US Government; this would effectively end the seagoing program at CFCC.

3. **Guns, rifles, and other firearms or explosives are prohibited aboard ship**. Weapons such as sheath knives, blackjacks, brass knuckles, etc. are prohibited. The captain will impound these and any other items, which in his judgment, might be used maliciously.

4. **Tobacco Use**: In accordance with CFCC policy, smoking is prohibited throughout the ship, with only one exception: smokers may utilize the aft section of the main deck, on either side of the A-frame. However in moderate or rough sea conditions, this area will be off limits and smokers will practice abstinence. This abstinence period will also apply to times when scientific station work is being conducted near the A-frame. The Captain or Chief Mate will issue smokers' advisories regarding prohibitive weather conditions. Butts and matches should be disposed into a proper receptacle. Snuff users should not expectorate on any ship surfaces. And the carriage of tobacco spittle receptacles is prohibited

5. **Proper Clothing**:

A. During station work on deck, all participants must be attired in hard hats and work vests.

B. Sandals or flip-flops are not permitted except for short inside transits between cabins and heads. Walking barefooted is not permitted.

C. Shirts, more substantial that tank tops, must be worn in the galley.

D. Guard against overexposure to the sun; remember, you're doubly exposed when working or playing on the water.

VII. **MEDICAL CONSIDERATIONS**:

1. The ship does not carry a medical doctor but the Captain and several crew members are certified in basic first aid, CPR, and AED use.
2. The ship carries two AED's, a medical chest under control of the Captain, and several first aid kits. The kits are located in visible locations throughout the ship (on the bridge, in the laboratory, engineroom, and galley).
3. In the event of a medical emergency, professional medical advice is available through the U.S. Coast Guard over the ship's radiotelephone.
4. Though the ship's route never carries it more than 12 hours from the nearest port of refuge, a seriously ill or injured person can be evacuated from the ship by a Coast Guard helicopter if ever required.
5. A person with a potentially debilitating medical condition should give careful consideration to the wisdom of embarking on a voyage. If unsure, consult with the Marine Technology Department Chair or the Captain.
6. A person with a medical condition which might require special attention during the voyage should explicitly communicate this information (confidentially if desired) to the Captain or to the cruise supervisor/instructor before voyage begins. (Examples: diabetes, epilepsy, asthma, etc.).
7. Any prescription drugs brought aboard for the voyage shall be reported to the Captain or the cruise supervisor/instructor.

VIII. **COURTESY CONSIDERATIONS**

All hands will be living and working in close consort during the voyage. It's a great chance to develop closer friendships and really get to know one another better. On the other hand, inconsiderate behavior can strain relations between shipmates. Some simple etiquette and courtesy are expected of everyone aboard.

1. Keep it clean! Clean up after yourself, whether it's in the galley, the head, the lab, or your berthing area. Replace rolls of paper towels and toilet tissue if you deplete one. Respect the sanctity of the "throne" in the head: if you're guilty of an accidental spill or miss, use a paper towel and disinfectant to clean it up. Please keep the language clean too; use of profanity is offensive to most people, and is inappropriate.
2. Keep the noise down, especially in the berthing area. With watch standers on duty round the clock, there's always someone trying to sleep. Personal Ipods or Walkmen are preferable to boom boxes anywhere on the ship. A stereo music system is available for use in the lab, providing that it does not conflict with training or scientific activities; volume should not be maximized.
3. Sexual harassment is defined as unwelcome sexual advances, request for sexual favors, and other verbal or physical conduct of a sexual nature, which has the purpose or effect of unreasonable interference with an individual's work performance or creates an intimidating, hostile, or offensive work environment. If you feel that you are being harassed or that someone else may be, it is your duty to report it to the Captain or the cruise supervisor/instructor. The Captain is required by law and CFCC policy to insure an atmosphere free of such harassment and to take definite action to correct such a situation,

including filing a report to the Marine Technology Department Chair who will then report it to the Director of Personnel.

IX. **MEALS AND GALLEY ETIQUETTE**

1. Three hot, appetizing, full course buffet meals are provided daily.

Meal times are:

Breakfast:	0700-0800
Lunch:	1130-1230
Dinner:	1730-1830

Students may begin serving themselves 15 minutes after the start of meal time, to allow working crew members to go first. Please be moderate in your servings, and if inclined to return for a second helping, do so only after all your shipmates have been served.

2. Between meals and after hours snacks: a ready supply of leftovers, fruits, juices, milk, cereal, popcorn, popsicles, etc. is available. Items may be left out on the counters in the messhall, and the cupboard under the serving counter is accessible for snacks. The small refrigerator in the messhall, and the larger one in the lab are stocked with items such as milk, juices, and puddings. There is an ice cream freezer forward of the messhall and head, accessible to all. Partakers are asked to consume with moderation, and to be considerate of the limited supply of such items. The galley, the walk-in pantry, and the walk-in refrigerated boxes are all solely the cook's domain, and thus are off-limits to all others. Always clean up after yourself, please.

3. The cook strives to produce nutritious menus with good day-to-day variety. Persons with additional nutritional needs should plan to provide for themselves. Personal cooking requests are not likely to be honored due to space and time constraints.

X. **PORT CALLS AND LIBERTY**

The itinerary for some voyages includes port calls, often for field trips and organized tours of aquariums, oceanographic institutions, and other prospective employers of Marine Technology graduates. Some port calls simply offer a brief break from the seagoing routine, with an opportunity to stroll and explore the cultural enrichment attractions of bustling seaports. At these times all hands must bear in mind that they are ambassadors of Cape Fear Community College, and are expected to conduct themselves in a respectful manner conducive to upholding the College's good reputation. To these ends:

1. Before liberty is granted, details will be communicated about ship departure time, and the time (usually an hour beforehand) when liberty expires. Tardiness in returning to the ship may result in being left behind, stranded in a strange place, and dealing with returning home on your own recognizance. Academic credit for the cruise will be forfeited, and disciplinary penalties may be levied.

2. Liberty attire should be neat. All hands are encouraged to "spread the good word" about CFCC Marine Technology to any interested parties.

3. Visitors are not permitted aboard ship during port calls, unless arrangements have been made in advance to join with family, friends, or agency/institution officials. Permission for these visits must be cleared in advance through the Captain or the Cruise Supervisor.

4. Port time often is a good opportunity for rest, especially for those who have been on night watches; or if the weather has been rough, a chance is afforded to relax. For this reason, all hands are asked to be considerate of shipmates enjoying "peace and quiet" time.
5. Consumption of alcoholic beverages during all College-related endeavors, including ship port calls, is prohibited.

XI. **Ship Regulatory Compliance:** The CAPE HATTERAS is governed by extensive regulatory statutes for documentation of ownership, occupation, and safety. Agency statutes to which the ship complies are:
1. **The American Bureau of Shipping (ABS)**, which sets safety standards for the marine industry. This is achieved through the establishment and application of technical standards, known as Rules, for the design, construction and operational maintenance of ships and other marine structures. Classification is a process that certifies adherence to these Rules. The CAPE HATTERAS is classified by the ABS as AI and AI-M (machinery). These are the highest standards awarded by the agency.
2. **The U.S. Coast Guard**, the agency charged with enforcing many laws concerning ships and seagoing operations. The Coast Guard:
A. Grants the CAPE HATTERAS an official Letter of Designation as an Oceanographic Research Vessel.
B. Issues licenses and seaman's documents for ship crewmen
C. Requires random drug testing for deck officers.
D. Ensures the CAPE HATTERAS is compliant with shipping safety statutes mandated by the Code of Federal Regulations, the United States Code, and international marine pollution regulations.
E. Promulgates the U.S. Navigation Rules ("Rules of the Road") for prevention of vessel collisions.
3. **The Federal Communications Commission**, regulates radio communications between ships, as well as the use of emergency radiobeacons and radar.
4. **The National Fire Protection Association**, a professional organization that sets standards for firefighting equipment and for fire prevention. Ship fire suppression equipment is in compliance with NFPA standards.
5. **The International Maritime Organization** (IMO), a United Nations agency which sets safety standards, pollution regulations, and Safety of Life at Sea (SOLAS) statutes for lifesaving protocol and equipment.

XII. **SHIP HISTORY**
Sea Training Vessels at Cape Fear Community College

Since its inception in 1965, a cornerstone of the Marine Technology program at Cape Fear Community College has been underway, offshore training for students on College-operated oceanographic research vessels. A brief history of the ships follows:

R/V ADVANCE II:	1965-1981
R/V DAN MOORE:	1982-2013
R/V CAPE HATTERAS:	2013-present

The R/V (research vessel) CAPE HATTERAS, built in 1981, was owned by the National Science Foundation and operated by Duke University from her home port on Pivers Island in Beaufort, NC. She was used by Duke/UNC Oceanographic Consortium, and scheduled by UNOLS (University-National Oceanographic Laboratory System). Her areas of operation were the North American east coast from Nova Scotia to the Caribbean. She was operated primarily as a Regional Zone Research Vessel. Cape Fear Community College purchased the ship in March, 2013.

The CAPE HATTERAS replaced the R/V DAN MOORE, which logged over 2,500 days of seatime on 419 voyages during a 32 year period as our Marine Technology training vessel.

The DAN MOORE was named after the governor of North Carolina who was in office when the ship was built in 1967 at New Bern, NC. Designed by Massachusetts-based naval architects Potter and MacArthur as a steel stern trawler, the 85 ft. long vessel was operated by the N.C. Department of Marine Fisheries based in Morehead City for 15 years. Its mission was to study fish population distribution in North Carolina waters, and to test different methods of fish harvesting. But in 1981, the Marine Fisheries Department, facing a budget crunch due to federal funding cutbacks, was forced to seek a smaller, more cost-efficient vessel to take the DAN MOORE's place.

At that time in Wilmington, Cape Fear Technical Institute (the name was changed to Cape Fear Community College in 1988) had been operating the R/V ADVANCE II since1965. The 180-footer was built by the US Navy in 1944 as a Patrol Craft Escort (or "sub-chaser"), and acquired by the Institute to serve as the sea training vessel for Marine Technology A.A.S. students. In addition, the ship was chartered to other colleges, universities and scientific agencies for oceanographic research work. She carried a crew of 20 and had accommodations for up to 55 students and scientists. In addition to her regular training voyages off the Southeast coast, she undertook extended voyages to Lake Ontario (on a UN research project), the US Virgin Islands (for the BOMEX expedition in 1969), and to Guyana, South America.

In 1981, due in part to the soaring cost of fuel, and to the expensive challenges of maintaining such an old vessel, it was time to retire the ADVANCE II from her academic service career, and she was sold for $151,000 to a menhaden fishing company based in Weems, Virginia. (She finally went on in 1994 to be sunk as an artificial reef offshore of Oregon Inlet on the NC Outer BanksAn agreement was made between the two state agencies to render mutual aid: CFTI would pay for the construction of a new and more cost-effective 47 foot long Marine Fisheries vessel, and in consideration, would acquire the R/V DAN MOORE to take the place of the ADVANCE II. During the interim period while this arrangement was finalized, in 1981 and in early 1982, CFTI chartered Duke University's 135-foot R/V CAPE HATTERAS for its student training voyages.

In October, 1982 then, the DAN MOORE sailed to her new homeport of Wilmington. At that time, she had accommodations for only 12 persons, and she was "rigged" for commercial fishing. To enable her new scientific training role, 14 new bunks were installed in the lower deck laboratory; much of the heavy fishing gear was removed and replaced with

oceanographic winches and over-the-side A-frames. In addition to her use for Marine Technology training, she also served as the training vessel for the College's Commercial Fishing curriculum. (This program was discontinued in 1988.) A 150 square foot scientific laboratory was built on the main deck in 1992 to better accommodate the use of new oceanographic equipment and methods. The ship's engines and reduction gears were renewed in 1993. She has safely logged over 1900 days of seatime since her acquisition by the College. In addition to the primary mission of student training, she has been chartered for use by such agencies as Johns Hopkins University, the U.S. Geological Survey, NOAA's National Marine Fisheries Service, Duke University, UNC-Wilmington, NC State University, the US Army Corps of Engineers, and Scientific Applications International Company, among others.