

Irminger Sea; Oct 20 - Grunnskoli Seltjarnarness

Questions from the students at Grunnskoli Seltjarnarness school, Iceland; answers provided by Dr. Bob, Melissa P., Captain Kent, Bosun Kyle, Chief Engineer Mike, Dallas, and others

Is your expedition dangerous?

We have to answer this with a definite yes and no. The purpose of this ship is to gather scientific data/knowledge about the ocean. But as we've stressed in the posts, doing so requires something close to heavy industry. Cranes move heavy objects around the deck; winches deploy and retrieve heavy measuring devices into and out of the ocean. People are working on deck day and night in all but the worst weather. Deck crew are welding and doing other work associated with factories and construction sites. And then of course the ocean itself can be dangerous. Simply going to your cabin can be dangerous in heavy weather because there are stairs ("ladders" in nautical lingo) to negotiate. If you fall overboard,...well, don't even think about it. So we can say, yes, the expedition is inherently dangerous.

On the other hand, this is a thoroughly professional operation. "Safety first" is not just a slogan. When working on deck, we all wear safety jackets and hard hats. Everyone uses the many handholds (even in the shower) and watches where he/she steps. The crew conduct weekly fire drills, while members of the science staff gather for drills at our "muster station" with life jackets on (hats, too) and our survival suits by our side. These fire- and abandon-ship drills are taken very seriously aboard Knorr. Sometimes, on the Captain's orders, theatrical smoke is set off in some section of the ship to make the fire drills more realistic. The fire-fighting team puts on full suits and respirators to douse the "fire." During the last abandon-ship drill, one member of the science staff (Ben) was told to stay in his cabin when the alarm went off. We "mustered" with our survival gear, and roll was called. When Ben didn't answer, an officer went looking for him.

If you don't count seasickness, no one has been ill or injured even slightly so far on this trip. There is still time to get hurt, and no one is taking anything for granted. The drills go on; all crew members and science staff look out for their own safety and avoid doing anything reckless.

Do you have divers aboard?

There are at least two ex-professional commercial divers aboard, Bosun Kyle and Chief Engineer Mike among them, and others with years of diving experience. However, due to insurance regulations and other concerns, there is no diving allowed. Even if it were, diving of any kind in these Arctic waters would be stressful and dangerous.

Why is the ship named Knorr?

R/v Knorr, owned by the U.S. Navy, is named for Ernest R. Knorr, who was Chief Engineer Cartographer of the U.S. Hydrographic Office from 1860 to 1865. In other words, he was in charge of making charts (maps for mariners) of the United States coastline and harbors. His work coincided in time with the American Civil War. For various bad reasons, most of the coasts, except for old harbors such as New York, Boston, Charleston and Philadelphia were poorly charted or not at all. Merchant captains and even naval officers were still supplementing second-rate American charts with British charts from before the Revolutionary War. Everyone at the time knew this was not good, that it was backward, but no one could quite work out what government body—civilian or military—was responsible for the job. With the Civil War looming, the navy seized responsibility, and Ernest Knorr led the effort.

How many lifeboats do you have aboard?

The lifeboats of the sort you see in old movies (*A Night to Remember*, for instance) have been replaced by life rafts. Modern life rafts are contained in hard-plastic capsules designed to open and inflate automatically when they hit the water. The old lifeboats were very heavy; they required "davits" for mounting on the side of the ship and elaborate hoisting gear; and they took up a lot of deck space. Also, there was another drawback: Say the ship was damaged and taking on water causing her to "list," that is, to lie over on her side. In that case, the lifeboats on the high side could not be launched. Modern life rafts, stored in canisters and mounted on slides ready to go into the water simply by releasing their straps, have solved those problems. There are ten rafts on board with a capacity for 92 people.

There are also two "rigid-bottom-inflatable boats ("ribs") aboard. One is designated as a work boat, the other as a rescue boat. The distinction is that the rescue boat can be launched without using any electrical power; in other words, it will slide over the side when its securing gear is released. This is important in the event of an emergency when all power might be lost. The work boat requires an electric winch to launch.

An "Emergency Position Indicating Radio Beacon" (EPIRB) is located at each life raft station. EPIRBs automatically send out distress signals—and the position of those in distress—that can be picked up by stations ashore or by overflying aircraft.

What kind of books do you have in the ship's library?

The library is well stocked with all sorts of books: technical oceanography literature, travel guides from places all over the world visited by this ship, sea stories both fiction and nonfiction, as well as popular novels such as mysteries, comedies, and adventure stories. But the spacious, comfortable room is more than a library in the sense of a place to shelve books. It is a kind of lounge for quiet personal reading and relaxation with comfortable armchairs and a big table. There are also two computers for the crew's use with Internet connection and e-mail capability. Only in the last several years has Knorr and other research vessels been equipped with 24-hour Internet connection. There is a photograph of the library in the [October 16 post, "A Day's Routine."](#)

Do you find any leopard seals?

Leopard seals are found in the southern hemisphere and are most abundant around Antarctica, so no, we will not see any leopard seals up here in the Arctic. However, there are a number of seals found in the Arctic Ocean. Harp seals, ring seals, spotted seals, hooded seals, and bearded seals are all Arctic species. Seals are often found close to land and can be seen hauled out on pack ice close to shore. We haven't seen any seals yet, but perhaps we will before the end of the cruise.

Have you discovered anything interesting?

We have found lots of exciting things on this cruise, although it will take months (even years) before we sort it all out. For example, early in the cruise we retrieved a set of moorings that were in the water for an entire year. We have now transferred the data onto our computers, and have discovered that the currents flowing near the edge of the East Greenland shelf were incredibly fast and powerful. In fact, often times the flow was so strong that it bent the moorings over, sometimes by as much as 600m! We also discovered that this happens in bursts, and these bursts of flow are probably related to the powerful storms in the region (although this still needs to be verified). In addition to mooring data, we have been collecting information from the ship over the last month and have seen some neat things. For example, when we were sampling near the fjord along the East Greenland coast we saw warm water flowing into the fjord that originally came from the Gulf Stream! This sort of thing has been seen before, and it is suspected that the warm water can help melt the glaciers from below (in addition to the warm air temperatures that are melting them from above). On this cruise we figured out how the warm water is getting into the fjord. It is because a deep canyon extends all the way from the fjord to the shelf edge, and the warm water flows up the canyon from offshore. There is lots more to say, and I will eventually present our results in various scientific journals. Dallas will write a fun article about the cruise itself, and we'll be sure to send a copy of this to your school (with lots of pictures!).

Have you lost many kilos in the ship's gym since you were here?

The gym is pretty well equipped: stationary bicycles, Stairmaster, Nautilus machine, free weights and a punching bag. More people are using it since we've been parked out of the way of the enormous storm than when we were running watches 24 hours a day. But as to losing weight, nobody claims to have done so. We eat more aboard ship than most anyone eats ashore—maybe it's something in the sea air. However, no one seems to be gaining too much weight.

Have you had any accidents on board?

Thankfully, no. But everybody remains careful and vigilant. For more, see the answer to the first question.

Is there a hospital on board?

Depending on ship/crew size ships are required to have a space that can be used to isolate sick or injured people. We have a hospital with 3 bunks and a private head (bathroom/shower).

The hospital is well-stocked with many prescription medications from antibiotics to heart medications. We also have a heart monitor, an automated external defibrillator which is used to correct an irregular heart beat as in a heart attack victim, and medical oxygen.

We subscribe to a shore side Medical Advisory Service which provides assistance and advice about specific conditions and emergencies. They have doctors and nurses "on call" 24 hours a day who we can talk to for advice and permission to dispense prescription drugs. Since we do not have a doctor on board, we have to seek permission/approval from the MAS doctors for prescriptions or medical procedures. Our hospital is small and has limited resources for extended care so for serious injuries/illness we would make our best speed for the nearest port with medical facilities and/or evacuate the individual by helicopter or Coast Guard vessel.

On the average voyage, the Chief Mate is the designated medical officer with EMT-type training. The Captain also has medical training. Both the Captain and the Chief Mate have many other responsibilities so a medical emergency really taxes the personnel resources of the ship. The Captain has to handle all of the communications with authorities, arrange evacuation and often assist with the care of the patient, the 2nd and 3rd Mates have to cover the Chief Mate's navigation watch so that the Chief Mate can care for the victim. In most serious medical emergencies more than one person is needed to care for the individual until they can be evacuated.

We had a situation several years ago where a crew member collapsed from a brain aneurysm. On that voyage, we were working between South Africa and Antarctica. Due to the very remote work area, we did carry a medic. Our medic was an emergency room nurse, hired specifically for that trip. Our crew member was unconscious and unable to breathe on his own. Under the guidance of our Nurse and our medical advisory service, we kept the crew member alive until we were within helicopter range of Cape Town, South Africa. For about 3 and a half days the whole crew took turns squeezing the Bag Valve Mask to supply oxygen to the crew member. We actually ran out of medical oxygen and had to ventilate with humidified room air. We don't have any humidifiers on board like one would have in their house so the engineers rigged up a make-shift one.

As Captain Sheasley explained a few days ago, each of the crew has areas of responsibility which keep them busy, on average 10 hours a day, seven days a week. With the critically ill crew member, not only did someone have to cover his duties, everyone else took 4 hour shifts in the hospital when they were finished with their regular assigned duties. The medic was essentially awake for 4 days directing the care of the patient and only napped occasionally on the other bunk in the hospital. After being evacuated by helicopter, the crew member did die at the hospital. That was an exhausting four days both mentally and physically. This was someone that we all knew well, ate 3 meals a day with, lived with for months on end. The hardest thing to do is to detach yourself from the fact that this is a friend and shipmate who is sick or hurt and to focus on the problem at hand. It was an incredibly powerful experience to witness how the whole crew rallied around this guy to get him to shore.

What will you do if someone dies?

Happily we have not had anyone die on board. We do have a body bag on board and we could arrange refrigeration if needed. There are no burials at sea anymore. By law, the deceased has to be pronounced dead by a medical professional.

How many years does it take to become a captain?

There are a couple of different routes to becoming a ship captain, and the amount of time it takes varies a little based on those routes and the type of experience and education someone has. One way is to start as a deck hand and work your way up. If someone chooses this route, they have a lot of theory and studies to learn on their own (sometimes senior officers are willing to help, if you show you are working hard). This is a very difficult way to go, and generally takes longer. Another route, a little more common with Merchant Marine Officers in the U.S. ship fleet, is to go to a Maritime Academy. These "academies" are basically a college or university that, besides your studies to acquire a four year Bachelors degree, you also focus on ships and the theory involved in them. The lifestyle, while you are attending, is very similar to the military academies, although not quite as strict. Generally, the two major disciplines are Marine Transportation

(Deckies) and Marine Engineering. The benefit to going to one of these schools is that you learn all of the theory and gain a lot of qualifications without having to do them separately and on your own. You don't have as many days at sea experience as the deck hand route, but the experience and training you have is a lot more thorough and in-depth. The last path that I know of is working your way up from smaller vessels. This path is very similar to working up as a deck hand. As you gain experience with a small vessel, you become eligible to take the test for a license to work on medium sized vessels. After so much experience, you are eligible to take the test for larger vessels. The officers on the *Knorr* have to have the highest license there is in the U.S., which is unlimited tonnage on any ocean. Either path that someone takes, it requires a lot of study about many topics, and work. It also includes proving (not just telling!) to your superiors that they can rely on you, that you are where you need to be- when you need to be there. Last but not least, you have to prove to them that they can trust you and your judgment. Just because you have a license, or qualification, to do something doesn't mean your superiors will give you the opportunity unless you prove yourself.

About the fastest that any of the Research Ship Captains that I have heard of have done it, is about 11 years, from when they started the Maritime Academy. I say this was "fastest", but I can tell you that it is not about how fast you can get there, it's about being ready to be there on many topics. By the way, that includes all of the topics you are studying at school as you grow up as well. Very often I use every topic, including geography, all the sciences, math, English, foreign languages, history, social studies, physical education - you name it. It all is truly very important.

Regards, Capt. Kent

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Mail: Woods Hole Oceanographic Institution, 266 Woods Hole Road, Woods Hole, MA 02543, USA.

E-Contact: info@whoi.edu; press relations: media@whoi.edu, tel. (508) 457-2000

Problems or questions about the site, please contact webdev@whoi.edu