

## **Report on Security Operations and Piracy Attack and Their Impact on Scientific Operations**

***RIV Maurice Ewing, EW -110***  
**21 August - 12 September 2001**

**Amy Bower, Chief Scientist**

The purpose of this report is two-fold: 1) to describe, from my own perspective, the armed attack on the *RIV Maurice Ewing* on 31 August 2001 and its impact on the scientific accomplishments of the cruise; and 2) to describe in brief how some of the specific security precautions on the *Ewing* and on the *R/V Knorr* (which also visited the Gulf of Aden earlier this year, and on which I was co-chief scientist) interfaced with scientific operations, and make some suggestions on how these procedures might work better in the future. My role on these cruises was scientist, not security professional, and my objective here is to provide feedback on how security issues impact oceanographic research.

The *Ewing* Incident: A life-threatening encounter with armed men in a small motor boat occurred on 31 August 2001 when we were about 18 nm from the northern Somali coast. For the previous 10 days, we had been conducting physical oceanographic research in Bab el Mandeb strait and the far western Gulf of Aden. We were making observations of the dense, salty water that flows out of the Red Sea into the Gulf of Aden and Indian Ocean as part of the NSF-sponsored Red Sea Outflow Experiment (REDSOX). This was the second of two REDSOX cruises to this area, the first having been conducted on the *RIV Knorr* on 11 February - 15 March 2001.

Prior to the attack on the *Ewing*, we had already completed 132 CTD stations, four deployments of a CTD/ADCP short-term mooring, and 10 float deployments. We had fully completed one objective of the cruise, which was to observe the descending Red Sea outflow water south of Bab el Mandeb. We had just started a high-resolution CTD/LADCP survey of the Gulf of Aden that was to include about 114 stations, extending across the entire gulf up to the 12-mile limits of Yemen and Somalia.

On the day of the incident, I had just arrived in the main lab to prepare for a science meeting at 1100. All the scientific personnel were awake for the impending meeting and change of the watch at 1200. The CTD was in the water at station #133. A small boat, which had been being towed by a larger vessel, approached, and the CTD cast, which was almost completed anyway, was quickly terminated and the CTD secured on deck. As I heard that the ship's security team was escalating its preparations, I requested that all science personnel come into the lab for safety. We watched on the video monitor in the lab as shots were fired from the small boat, and the security team (crew) hit the deck. The captain then ordered all non-essential personnel to go to their staterooms and lock the doors. By then we were well underway, being pursued by the small boat. In my stateroom, I monitored events with the captain by phone and VHF radio. Information was passed to the rest of the complement by the captain over the public address system on the vessel. My roommate saw from the port hole (we were on A deck) one grenade fired toward the ship while we steamed away. After 30-45 minutes, the small boat ceased

pursuit, and we continued steaming away at full speed. When it was clear the pursuit was over and the small boat was out of sight, the "all clear" was given and we all returned to the main lab.

Shortly thereafter, I met with the captain and we agreed to take up again our CTD stations in the northern half of the gulf while we waited for advice from the States. This continued until about 2200, when the captain and I spoke with Mike Purdy and others at LDEO by telephone to discuss future operations for the cruise. They suggested a 50-mile restriction from both the Yemeni and Somali coast. I took about an hour to consider this and work with the other scientists on board to develop a new sampling plan with this in mind. During a second telephone conversation, I agreed with the restriction with a few exceptions: on two north-south crossings, we would be able to come within 35 nm of Yemen to sample particular features related to the bathymetry there, and farther east, we would need to get within 32 nm of Yemen to deploy a sound source mooring that was to be part of an existing moored array. This was agreed to, and we carried on with CTD operations.

The restriction to remain 50 miles from Yemen and Somalia has had a major but not devastating impact on our research objectives. A major branch of the Red Sea outflow is thought to follow the boundaries of the Gulf of Aden, primarily along the Somali coast. One objective was to test this hypothesis. As a result of the restrictions on the *Ewing's* movement, we have not been able to study that aspect of the outflow during this cruise. Specifically, this resulted in the loss of about 40% of the planned CTD stations remaining in the gulf, and the need to re-locate a float time series site that had been previously established near Somalia. If I had to estimate the overall loss in terms of percentage of original objectives not met due to this incident, I would say about 30%. We re-designed our sampling plan to focus more on the large eddies that are present in the middle of the gulf. These eddies are also important in the spreading and mixing of the Red Sea Water. We replaced stations near the boundaries with more stations in the eastern gulf. Even so, the eddies could not be fully mapped due to the lack of stations near the boundaries. The new objectives were met and I consider the cruise to be a success based on the new objectives.

Security Procedures and Recommendations: Prior to REDSOX-1 on the *Knorr*, Dick Pittenger at WHOI made the security arrangements for the cruise. The main precaution taken for this cruise was to put two security professionals on board for the entire cruise. As I understood it, their job was to provide training for the crew, watch for and assess any suspicious vessels, and advise the captain. There were no incidents during REDSOX-1. After that cruise, I contacted Paul Ljunggren at LDEO and described in detail what we had done scientifically on REDSOX-1 and that we planned the same scope of work on REDSOX-2 on board the *Ewing*. At some point before REDSOX-2, Paul let me know that their plan was to put one security professional on the leg prior to REDSOX-2 (Piraeus -Djibouti) but not REDSOX-2.

Hindsight is always 20/20, but in retrospect, I wish security professionals had been on board the *Ewing* during REDSOX-2. I say this not so much because I think it would have been appropriate for them to fight off our assailants with non-lethal or lethal force, but because it would have provided a better sense of security for myself and the other scientists. To know that a security professional was always on watch, always looking out for potential threats, would have given us a better peace of mind to conduct our research. In my opinion, the fact that the *Knorr* had no attacks or incidents was not good reason to eliminate security professionals on the *Ewing* during REDSOX-2.

At this point, I will not describe all the security procedures that were in place on the *Knorr* and *Ewing*. This information is available elsewhere. Instead I will briefly comment on some of the procedures and their impact on science.

Both vessels had in place security plans for reacting to a perceived threat, which involved a series of heightened alert states. Regarding the science personnel, the plans were similar in scope but differed somewhat in the details. On the *Knorr*, science activities were to proceed as a potentially-threatening vessel (hereafter PTV) was sighted and approached us (conditions alpha and bravo). If it looked like boarding would be attempted, all scientists were to muster together in the mess deck (condition charlie). If boarding was looking like it would be successful, "lock-down" conditions would be followed, where all ship's personnel would be inside the ship, which would be secured from the inside, except for the two security professionals. Also at this point, women were to be sequestered separately in a hidden space below the engine room. On the *Ewing*, the boundaries between alert states were maybe not so well-defined to the scientists, but the gist was the same. One difference however, was that if boarding looked imminent, scientists were to go to their staterooms and lock the doors, remaining there until an "all clear" was broadcast over the P A system. No special arrangements were in place for the women on board.

The plan on board *Knorr* was never tested in a real situation, so it's hard to say how well it would have worked. On board *Ewing*, it was tested, and in general seemed to work fairly well from a science perspective. The situation escalated very quickly. The assailants were armed and used those arms against the vessel; the worst possible scenario. In light of this, it seemed to me that non-essential personnel, including all science personnel, should be inside the vessel as soon as a PTV is sighted approaching the ship, since it may not be obvious initially if the PTV is armed. As far as I can recall, this was not the planned procedure on either vessel.

The announcements to muster inside or go to staterooms should be made loudly and clearly so that all science personnel (as well as everyone else), whether sleeping or any labs or living spaces, can hear and understand the announcement. Some labs are very noisy and/or isolated. There were some issues in the *Ewing* incident related to not hearing announcements.

I have mixed opinion about the mustering and sequestering procedures for the science personnel. If the scientists are mustered together, I suppose there is a higher risk of violence to more people if the location of the group is discovered. On the other hand, being locked in one's room either alone or with one other person, can feel isolated, and

The overly-curious may even venture from their rooms to find out what is presently going on. On the whole, as a woman and a chief scientist, I am against the separate sequestering of women. I realize women may be perceived differently by different cultures, but on balance I think we should treat them equally in our security procedures on oceanographic vessels.

For the type of research we were doing (Physical Oceanography), it is very important to have at least four locations on the ship in open communication, that is, where all locations can hear the same information simultaneously. The locations in our case are the bridge, the lab, the deck and the winch booth. On the *Knorr* this routine communication was accomplished using squawk boxes. On the *Ewing*, the only means of this type of multiple listener communication was VHF radio on channels 68 or 69. Since these communications reveal the details of the ships movement, it seems to me the internal squawk boxes are preferable to VHF radio.

Although not directly related to science activities, I noticed that the sailing board on the *Ewing* was not mounted in a location where it could be viewed from the dock, whereas in Durban, South Africa, the *Knorr*'s sailing board was in full view from the dock. It seems to make sense to keep this information away from public view as it keeps private the planned movements of the vessel.

The overall approach to attacks of piracy on both vessels was non-lethal resistance. During the *Ewing* incident, it quickly became apparent that fire hoses were going to be a useless defense. Assuming that US research vessels are going to continue to operate around the world, I feel strongly that UNOLS and the ship operators have to squarely face this issue of unarmed and armed attacks and work together to develop a uniform approach to security on our vessels that would be standard across the board. Leaving these arrangements only to the ship operators discourages sharing of information and experience, and opens the risk of uneven safety standards. Such attacks are possible in any number of out-of-the-way ports around the world, as well as in known regions of piracy. Just as the officers and crews of our vessels have to be their own fire department, they need to be prepared and trained to be their own police department as well. I sincerely hope that the UNOLS reaction to the incident on the *Ewing* will not be to restrict our vessels only to the safest waters, but rather to develop a plan to reduce the risk of harm to crew and scientists throughout the oceans.