I started this article at 7:45 am EDT on September 11, 2021. Twenty years ago, I was in my office as commanding officer of the Coast Guard’s Research & Development Center in Groton, Connecticut with two senior staff discussing strategy for implementing our next fiscal year’s R&D agenda. Tragic events within the hour would turn our priorities, indeed the Coast Guard’s and nation’s priorities, upside down as a terrorist hijacked airliners were about to hit the World Trade Center in New York City and crash into the Pentagon. Another was headed towards Washington for the Capitol or White House before heroic passengers forced it to crash into a field in Pennsylvania. America was under attack.

I recently heard a panel discuss the 9/11 events and the little-known story of the incredible maritime evacuation of hundreds of thousands of people trapped on the southern tip of Manhattan. Panelists included Rear Admiral Rick Larrabee (USCG, Retired), then the maritime director of the Port Authority of New York; Coast Guard Rear Admiral Mike Day, currently military advisor to the Secretary of Homeland Security but on 9/11, a young lieutenant assigned to Coast Guard Activities New York; Admiral Jim Loy, 21st Coast Guard Commandant on 9/11; and retired Commander Ed Seebald, assigned to the Coast Guard Marine Inspection Office in Battery Park on 9/11 at the southern tip of Manhattan.

Admiral Larrabee was on the 62nd floor of the World Trade Center with his Port Authority staff when the first airliner struck. Lieutenant Mike Day was planning a typical workday at his Coast Guard office at New York harbor. At 8:46 AM an airliner crashed into the North Tower; people inside felt a slight tremor, but many didn’t realize anything was wrong until they were told to evacuate. Admiral Larrabee successfully evacuated his employees from the building. At 9:03 AM, a second airliner crashed into the South Tower of the World Trade Center. At 9:59AM the South Tower collapsed and at 10:28AM the North Tower collapsed.

One of many heroic stories that day, and often overlooked, is the massive boat evacuation of lower Manhattan as first responders swarmed to the scene, ambulances attempted to evacuate the injured, transportation systems were shut down, and communications systems were overwhelmed. People desperately fled buildings, and with no transportation options, walked south, to the tip of Manhattan until they were surrounded by New York Harbor, crowded against the seawall ten-deep. Over 500,000 people were trapped with no way to escape, get home, or communicate their needs.

**Tactical Innovation:**
Mike Day (then a lieutenant) observed the chaos in New York Harbor from a pilot boat. Mike had no guidance from higher authority due to inoperable communications, yet knew action had to be taken – some people had already jumped into the water attempting to swim to Brooklyn. Together with other Coast Guard personnel, Mike led efforts to develop and implement immediate innovative solutions.

One of the few communications systems not disrupted was the VHF-FM line-of-site communications channels for broadcasting to mariners on the water. Though limited in range, it offered the only opportunity to connect with the Coast Guard’s maritime partners. The Coast Guard put out a call, “All available boats. This is the United States Coast Guard. Anyone available to help with the evacuation of Lower Manhattan, report to Governors Island…” Over a hundred private and public watercraft responded: ferries, fishing boats, sightseeing boats, tugboats, fireboats, party boats and water taxis, headed to Governors Island for instructions to transport stranded civilians to safety.
As the boats headed to Governors Island just off Manhattan, the harbor was filled with boats receiving initial guidance from the Coast Guard that then had to avoid hitting other vessels in the congested waterway. Mike described how the insight and suggestion of one chief petty officer served to resolve the chaos and led to an effective evacuation plan. The Chief suggested instead of giving directions to each vessel on where to go, to provide a route or loop for the rescue boats to travel to pick up survivors at designated points and deliver them to safe drop-off points and return to pick up more evacuees. This allowed the boats to continually follow their loop and not run into each other.

By the end of the day, nine hours of evacuation efforts by 150 boats and over 800 mariner crew members had rescued 500,000 people from the southern tip of Manhattan. By comparison, the well-known evacuation of British, French and Belgium troops from the beaches of Dunkirk saved 339,000 in nine days during World War II. Listen to Tom Hanks narrate the story here.

Admiral Day described key elements to the successful evacuation. Personnel at all levels needed:

1) A bias for action;
2) To be empowered to do what they knew needed to be done;
3) To listen to the ideas of their people, at all levels; and
3) To be trusted by senior leadership to take positive actions with good intent.

There were many heroic initiatives/innovations displayed on 9/11 - An 80 year-old Coast Guard Auxiliarist offered to use his boat to protect the Statue of Liberty from attack stating, if he needed to, he would ram his boat into the terrorists. The vast majority of these initiatives successfully improved the crisis situation – not all worked, but each was made with good intent of professionals doing what they could to help during a crisis. One key point, afterwards, is to capture best practices and lessons learned from such events and not be ‘risk-averse’, but to become ‘risk-savvy’. In many situations you can’t avoid risk but should be aware of the risks and do the best you can. The lesson: Don’t stifle initiative and innovation, empower your people to do their best, and don’t assign ‘blame’ when things don’t go as anticipated. Instead analyze the situation and learn what can be done better so your people are better equipped and confident for future crises when called on to take action, possibly without clear guidance.

**Strategic Innovation:**

VADM Thad Allen (later the Coast Guard’s 23rd Commandant) was the Atlantic Area Commander on 9/11 and immediately closed major east coast ports and placed major Coast Guard cutters to act as Command, Control and Communications platforms at several harbor entrances including New York City and Boston where telecommunications systems were overwhelmed and there was concern of additional attacks. Admiral Allen was a strategic thinker and shortly after the ports were secured and the immediate threat of maritime attacks had passed, he gave me a call saying “Geoff, I’d like to get a much better understanding of all the significant vulnerabilities in our nation’s ports from terrorist attacks, accidents, and natural causes (hurricanes, earthquakes, …). I’d like your R&D scientists, engineers, and risk assessment experts to team with my operational specialists to develop a rational and consistent approach/methodology for determining the greatest waterways’ and ports’ vulnerabilities and risks that can be applied in all U.S. ports.”

Two weeks later our joint team produced the first draft of the Maritime Security Risk Assessment Tool (MSRAT) which looked at five threat vectors such as safety (loss of life/injuries), national security (closure of waterways critical for major DoD installations/missions), national heritage (Statue of Liberty), business (maritime commerce), and environmental (petroleum/toxic chemicals released into waterways). A scoring system was established based on the order of magnitude of
damage/negative consequences in terms of lives at risk and the damage suffered ($). Then potential threat scenarios for the specific port (terrorist attack against a tourist attraction or waterfront stadium, hurricane, chemical explosion, earthquake…) were evaluated and scored by port experts including the Coast Guard and other federal agencies; state and local agencies; the local Port Authority; maritime pilot associations; ferry, water taxi, tugboat, and maritime shipping organizations. We pilot-tested MSRAT on a sample port and the insights into vulnerabilities for a wide variety of threat scenarios proved very insightful and led to several mitigation actions. MSRAT was adopted and expanded to conduct similar assessments at the nation’s largest ports and as more was learned the model was continuously improved and evolved into MSRAM – Maritime Security Risk Analysis Model. MSRAM results were subsequently used to develop DHS Homeland Security grants to reduce vulnerabilities for critical port and waterways facilities.

**Operational Innovation:**

After-action reports following the 9/11 attacks demonstrated we had major issues to resolve to prevent potential terrorist attacks in our nation’s ports and waterways. The Coast Guard had difficulty communicating with federal, state, and local maritime organizations because they used different communications systems and frequencies. We also had difficulty identifying watercraft approaching high-value targets, such as boats passing nuclear power plants, convention centers, or sports stadiums on rivers and bays. To overcome these operational vulnerabilities, the Coast Guard R&D Center initiated the “Cats-Eye” program to identify and pilot-test promising solutions. We identified potential maritime solutions and established prototype test ports on each coast in Miami and San Francisco. We tested five technological and operational solutions in each port to:

- Improve communications among ‘blue forces’ on the water – Coast Guard, Customs, Marine Police
- Quickly identify watercraft in sensitive or critical waterways
- Quickly notify authorities of watercraft approaching high-value targets (nuclear power plants, the Super-Bowl, sports stadiums, …) and if they intruded within established security zones.

After the initial pilot-tests, several technologies were further explored and developed into effective tools to combat potential maritime terrorist threats in U.S. waterways.

**Today’s Challenges: Pandemics, Cyber-Security, Weather/Climate Change, …**

*The 9/11 Report*, prepared by the National Commission on Terrorist Attacks Upon the United States, found a major factor that led to the 9/11 terrorist attacks was a failure of imagination of what attack modes terrorists might be capable of carrying out in the United States. As we leave Afghanistan after 20 years following the 9/11 attacks, we need to be prepared for emerging and future threats including global pandemics, foreign and domestic terror attacks, cyber-security and ransomware attacks, hurricanes, and raging wildfires. Visionary imagination of how those threats may take place and effective tactical, operational, and strategic countermeasures must be developed by current and future innovators so our nation, like the Coast Guard on 9/11, is *Semper Paratus*, Always Ready.

CAPT Geoff Abbott, USCG (Retired), DBA
Author of *Unauthorized Progress – Leading ‘from the Middle’: Stories & Proven Strategies for Making Meaningful Impacts*
AbbottGL@aol.com