

The Binnacle

“Providing members of the Jacksonville Beach Flotilla of the U.S. Coast Guard Auxiliary with the way forward”

The Binnacle is the official newsletter of Flotilla 14-4

Anatomy of a SAR

David Cristol

Search and Rescue (SAR) missions are one of the most critical and challenging aspects of Coast Guard Auxiliary flying. The mission combines a vital purpose, precise flying, while fully utilizing our training and assets. A recent case we participated in highlights the many aspects of executing a SAR over a remote marshy area of coastal SE Georgia.

Late Thursday, August 3rd, two flares were sighted over the marshy area South of Savannah. This inland area has a surprising amount of waterways, including Ossabaw Sound, Saint Catherines Sound, Sapelo Sound, the Ogeechee River, Medway River, Vandyke Creek, Cedar Creek, and maybe 50 more.



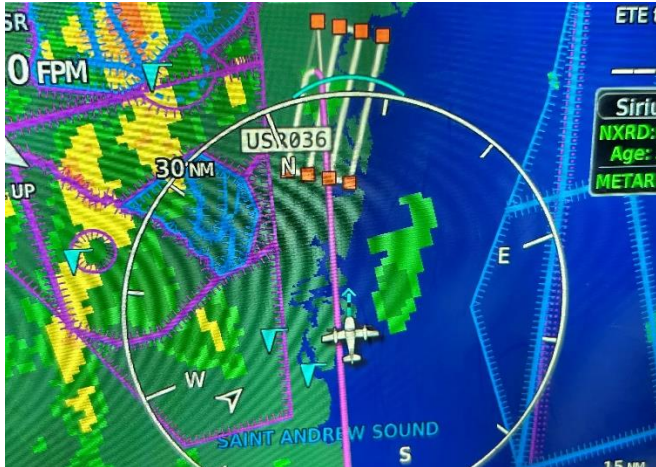
JACKSONVILLE, Florida – Auxiliarists David Cristol and Bruce Boswell stand in front of CG8214, a Beechcraft 58 Baron, prior to departure for their mission area. Photo by unknown circ. 2023

The Coast Guard searched the area at night for several hours but found no signs of distress. I woke up early Friday, August 4th, expecting a routine Coast Guard Auxiliary patrol to collect data for NOAA on reef utilization by sport fishermen. I checked the weather, and while it was good, I was still determining whether it would deteriorate and cause us to truncate our planned flight.

Calling the Air Station duty officer to confirm our mission plan and flight details, I was informed that we may be tasked with a SA. Our original mission would have kept us offshore and mostly well south of Savannah. The rain and storms were mainly concentrated west and north of Savannah this morning but moving Easterly with a slight south drift. I notified my crew of a possible change in plan to a first light SAR, provided available known details, pending weather degradation, and requested an advanced arrival time to expedite departure.

Before departure, I reviewed the search area and weather. One of the critical aspects of safe operations is good risk management. We have several tools which we use to identify and mitigate risks. We look at many factors, such as crew and equipment. The USCG-approved facility I fly is a 58 Baron, a competent multi-engine aircraft with modern electronics and the latest weather technology. I am also current and proficient in flight in day, night, visual, and

instrument conditions. I also had a very experienced crew member, a seasoned pilot. Our most significant risks that morning were the deteriorating weather and the marshy search location.



SAVANNAH, Georgia - Good weather on the way to search with only high overcast. Photo by Auxiliariist David Cristol circ. 2023

The air station gave me a call and provided me with the SAP (Search Action Plan). We would execute a Parallel search from the CSP (Commence Search Point) located ~14 miles South of Savannah International Airport, heading 206 degrees for 16.3 miles and then completing three additional tracks to the East with 2.8-mile spacing. In the old days, we used paper charts, but now everything is completed on a specialized aviation application with our iPads.

The application allows us to view terrain, aeronautical, and nautical charts, all geo-referenced to our cockpit GPS systems. It also includes a SAR pattern builder, so converting the SAP to a flight plan is relatively easy. After programming our search and sending a copy to the air station pilot, I called back to the air station for a final brief and to confirm my programming. We discussed the potential risks and agreed to proceed but to abort the mission if the weather deteriorated beyond our standards.

After completing our mandatory preflight checks and briefing, we were airborne and heading to the search area. The weather in Florida was excellent, but we watched the weather build in the search area. The aircraft has three sources of weather. It receives near real-time weather and radar from a satellite system and FAA radio towers. I also have an onboard weather radar in the nose of the plane that provides real-time weather on the cockpit displays.

Search pattern and weather as we arrive on scene

We maintain a radio guard with the sector during operations and use ATC (Air Traffic Control) for flight following and advisories. We checked in with Savannah's approach as we neared the area and explained our needs. ATC provides a second set of eyes and helps maintain separation from other traffic.

Our two risks were obstacles and weather. We studied our charts, and while Coastal Georgia is flat, it has many towers that jut up over 1000 feet, which presents a challenge while searching at 1000 feet and 130 knots. Luckily, these are plotted on our charts and highlighted by our onboard systems. There were towers inside the southwest quadrant of our search area. The towers were noted on the electronic charts & our aviation app terrain avoidance, making visual inflight identification easier.



SAVANNAH, Georgia - Changing weather conditions presents challenges for searching in the rain reduces visibility. Photo by Auxiliarist David Cristol circ. 2023

SAR has come a long way since I began with the Auxiliary. We can now wirelessly program our onboard GPS systems with the complete SAR track. I can then instruct the autopilot to fly the track, which allows me to focus more on the search. The plane will fly each leg and make precise turns at the leg end to perfectly align on the next leg.

Our second risk was the weather, which was quite dynamic. The rain showers and storms were forming to the west and sweeping east at around 20 knots. As we began our first sweep south, there was a shower across the center of the leg. As we were operating visually, we needed to maintain minimums and ensure we could adequately scan the area with the rain. Luckily, the shower was relatively light, and we could maintain several miles of visibility even while in the most substantial rain.

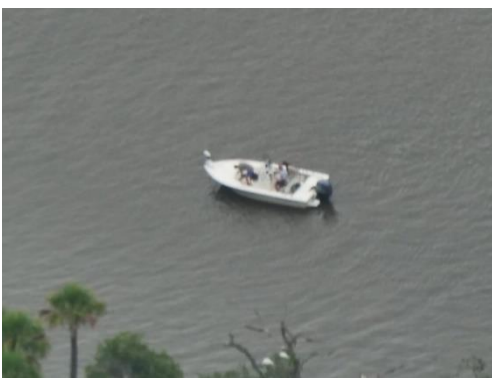


SAVANNAH, Georgia - Flying Leg 2 while using active radar for weather evaluation. Photo by Auxiliarist David Cristol circ. 2023

The airplane's equipment was invaluable at this time. Our satellite weather was providing the big picture, but the onboard radar continuously scanned and ensured no more robust weather was hiding behind the light showers. One significant hazard is that while you can see the rain right ahead, you can't tell if something nastier is hiding behind. The real-time radar returns give you an excellent picture of any lurking hazards.



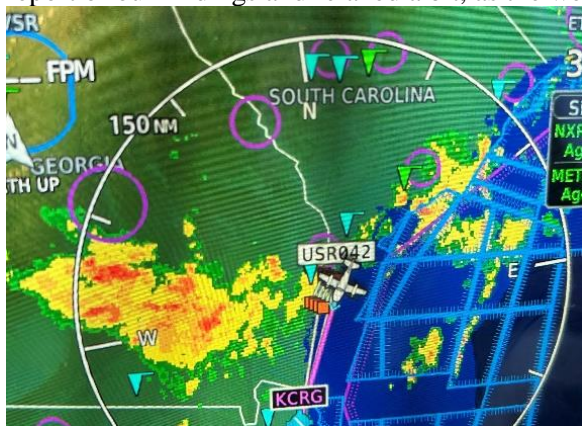
SAVANNAH, Georgia - Rainbow in the middle of the rain shower over the engines. Photo by Auxiliarist David Cristol circ. 2023.



The sector had asked us to note any vessel traffic while searching. As we completed the four legs, we identified a vessel fishing, a commercial vessel heading out to sea, and six other smaller vessels underway. We did not see anyone in distress or any evidence of previous distress. One other tool we employ is our digital camera with a telephoto lens. For example, we saw a fishing vessel motionless in the water in a remote swampy tributary with individuals sitting on it. Using the digital camera with a zoom lens, we could verify the individuals weren't in distress but were fishing.

SAVANNAH, Georgia - Using a digital Camera allows us to better identify targets. Photo by Auxiliarist Bruce Boswell circ. 2023

After completing the final leg, we headed South to Return to Base. We provided Sector Charleston with a preliminary report of our findings and relaxed a bit, as the weather to the South was excellent.



SAVANNAH, Georgia - Departing the search are before the significant weather rolls in. Photo by Auxiliarist David Cristol circ. 2023