When a crime occurs, police investigators face the daunting challenge of securing a crime scene, gathering evidence and determining its importance. Investigators and crime-scene analysts know their work and their discoveries can mean the difference between solving a crime and enabling a criminal to go free.

While finding and handling critical evidence has always been a challenge for investigators, performing such tasks underwater brings a new set of challenges. Underwater investigation incorporates 75-plus pounds of equipment, near-zero visibility and air-supplying tethers into an already labor-intensive endeavor.

Law enforcement agencies often avoided underwater investigations by simply hoisting sunken objects to the surface with a winch before beginning an investigation. But now, underwater investigators process and document facts about the object's precise location, position and contents before raising it in order to preserve crucial elements of a crime scene that can be damaged or altered when raised to the surface.

To help train a new generation of sub-surface investigators, the first Underwater Crime Scene Investigation Unit (UCSI) program in the nation was recently added to the criminology and criminal justice programs at Florida State University's Panama City campus. Since its inception in 2002, the UCSI team has employed a diverse...
These photos show some of the equipment — including deep-diving suits, computers and charts and maps — used during an underwater crime scene investigation.

A group of academics and experts: a retired Coast Guard diver, a police sergeant who was formerly an experimental diver, an underwater archeologist and survey specialist, a marine biologist, an oceanic engineer, and a mechanical engineer who once worked for a German automotive manufacturer. All bring their own expertise and unique equipment.

"Instead of reinventing the wheel, we modified conventional technology and plugged in new technology into the program," said team leader Thomas Kelley. "We have underwater cameras, video equipment, metal detectors, robotics, three-way video, and rebreathers with no bubbles; sometimes it is a mix of an archeological site and a crime scene."

The team's adaptation of technologies and procedures played an important part in Okaloosa County's CHER CAP (Comprehensive Hazardous Materials Emergency Response and

Capability Assessment Program) exercise earlier this year. More than 45 agencies put their knowledge, skills and training to the test during a simulated hazardous material spill at the CITGO terminal in Niceville. The UCSI team conducted submerged exercises designed to test procedures and equipment. "Save a few little things, it went really well," Kelley said.

Operating Vehicles, or ROVs, are routinely used to survey a scene and provide useful information for investigators who are not yet in the water.

Carrying underwater cameras and sonar equipment, the underwater investigation team moves in to survey and document a crime scene. Unlike wet suits, which allow a barrier of water to form between the skin and the suit, dry suits are usually worn with rubber seals around wrists, ankles and neck to prevent exposure to hazardous materials or contaminants. "Although we do sometimes have to wait for conditions to settle, we need to get in quickly and be exact in order for our evidence to hold up in national, and even international court proceedings," Kelley said. This means diving in all kinds of conditions because crime scenes are rarely found in clean, clear water.

Communications are an important tool in underwater crime scene investigation, and depending on the type of crime scene, there are two types of equipment available. When air and communication lines are supplied from the surface, a control panel allows divers to speak to each other and to the surface team. It also allows the surface team to track the divers using a global positioning system.
(GPS) and to constantly monitor their progress. But when portable tanks supply breathable air, communications consist of microphones and earpieces that only allow communication between divers and not with anyone on the surface.

Once in the water, investigators begin the laborious task of collecting information. A recent investigation contracted by Granite Construction involved the accidental drowning death of a bridge worker in Bay County. The accident occurred when scaffolding holding four men collapsed into Panama City’s North Bay. By utilizing the UCSI team, Granite Construction was able to complete an internal investigation into the accident and the team was able to once again test procedures and equipment.

Over the course of a week, the team followed standard crime scene investigative procedures in 40 feet of seawater. Instructors entered the site first to determine safety and possible hazards. After the initial inspection, students worked with instructors to begin the investigation.

The site was photographed using a digital camera inside a waterproof shell and videotaped from multiple angles, including a fly-by from overhead. Related areas were photographed and videotaped for further investigation and small objects were also collected. Using waterproof blueprints and grease pencils, investigators marked pertinent sites on the scaffolding and corresponding coordinates on the blueprints. With the information collected, team member and forensic scientist H. Dale Nute was able to draw a map of the site depicting how the scaffolding came to rest on the bay's floor after the initial impact.

While the UCSI program has become a growing area in FSU’s criminal justice and criminology degree programs, it is also available to non-students affiliated with law-enforcement or emergency services. This program is known as Beta team training. Both programs require dedication, commitment and time. “This program generates twice as much work as ordinary college classes because there is a great deal of field work to do as well as writing reports,” Kelley said. “And law enforcement procedure involves writing numerous reports.”

Beta team training is even more intensive since it is achieved in a two-week time span. For two weeks students
train 10-14 hours a day, five days a week. Not all of that time is spent in the water, however, since classroom instruction is also an integral part of the training.

For instructional purposes, the FSU/PC team has implemented standardized protocol and developed a UCSI manual. Fieldwork can take place in the North Bay or may include a trip to Quincy, Florida, where a rural pond serves as a training ground and obstacle course. There, students traverse low visibility underwater culverts in complete dive gear. Blackout drills are also conducted in full dive gear – but with the face mask obscured.

“In addition to knowing how to use the equipment, it brings up some serious psychological issues; we must be able to control our reactions,” says Derek Prowse, one of the program’s first graduates who now works with the team. “The concept of self-rescue is very important in this field.”

The team hopes to eventually expand its curriculum to include a minor in the field of criminal justice or criminology and to institute a certificate program for Beta team graduates. The program also recently acquired a 41-foot Coast Guard schooner to make even more areas of the bay accessible to students.

The team will continue to work closely with all branches of the military, the Department of Defense, and other federal, state, and local emergency management agencies. The UCSI unit has proven that properly trained investigators can successfully document, survey, map, photograph and process a crime scene in various underwater environments. “This is a brand new paradigm in criminology,” Kelley said.