

# Fleet Survey Team Searches



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6th Fleet Public Affairs Office

**T**he sun rises over the small Italian seaport of Gaeta as three Navy officers and their combined civilian-military crew prepare the *Cavalluccio Marino* (“sea horse” in Italian) for work.

Aboard the 34-foot launch, space is at a premium. Four large monitors display data, charts and numbers. With a gyrocompass, a fathometer, and other navigational instruments also crammed into the cabin, there’s little room for the crew to maneuver.



# s for Navigation Hazards

*Cavalluccio Marino* is preparing to chart Gaeta Bay for the Navy's Sixth Fleet. Existing charts for the bay date back to 1983—that is about to change.

"All right," says LCdr. Michael Nicklin to the boat's coxswain, "You ready to get moving?"

"Yes sir," comes the reply.

And with that, the journey begins.

Inside the \$2-million, hydrographic-survey launch, for the moment at least, there is no beeping, buzzing or other sound, save that of the ship's engine and generator. On the monitors, a multi-colored spectrum vaguely resembling Gaeta Bay lights up, as the outline of a boat moves along the screen.

Thanks to the efforts of a month-long project by the Navy's year-old Fleet Survey Team, a new, more accurate chart will be available to help visiting boats avoid obstacles and shallow water in the bay.

According to LCdr. Brian Connon, the team's officer-in-charge, the new chart will be much better.

"When we leave here, Sixth Fleet and Italy will have a chart that is larger and more detailed than the previous one. We've included more details of the shoreline, and we've added two recently discovered obstacles," he said. Those obstacles are two shipwrecks. Using a multi-beam and side-scan sonar, the team located the sunken remains of 30-foot and 60-foot vessels.

"The 60-foot vessel actually poses more of a hazard, because it sticks up about two and a half meters (approximately seven feet) above the floor of the bay," said LCdr. Connon.

He adds that findings like the two shipwrecks aren't entirely uncommon. "When we did a survey in Apra Harbor in Guam, we located a sunken vessel there as well," he said.

To chart an area, the team uses three major components: multi-beam sonar, Differential Global Positioning System (DGPS) and a "towfish" (sidescan sonar).

"What's great about multi-beam is that it sweeps the floor in a forward direction, using one hundred and twenty-seven beams to cover a wide area," LCdr. Connon said.

Multi-beam sonar is the workhorse of the team's systems—costing more than \$1 million—and accounts for the brunt of the launch's cost. Its beams collect massive amounts of raw data and convert it into a visual display of multi-colored dots on a monitor screen. Another computer program organizes those dots into a three-dimensional image of the scanned area.

To make sure coverage is complete, the boat must divide the bay into long strips. "It's a lot like mowing the lawn," said LCdr. Nicklin. "We just go back and forth until we've covered the entire area."

The team also uses DGPS. "We use up to eight DGPS satellites to confirm our location," LCdr. Nicklin said. "With three, you get a location, but with four, you can make adjustments to account for the movement of the launch through the water.

"Although Gaeta's tides only change the depth of the bay by about twenty centimeters, it's still something we take into account when we take readings," he said. "We also factor in water temperature."

Once the team completes charting the bay, the readings are submitted to the National Imagery and Mapping Agency, which ultimately approves them for use.

Surprisingly, the survey effort is economical. "The entire cost for this operation, including the cost of

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shipping and per diem for seven people, runs about sixty-five thousand dollars for thirty days,” LCdr. Connon said. “If the Navy had sent an ocean survey ship to do the same thing, the cost would be about twenty-seven thousand dollars a day. Multiply that times thirty and you’ll see why sending our team out here saves the Navy a lot of money.”

All of the team’s equipment is portable and is shipped to where it’s needed. The 34-foot hydrographic-survey launch used for the Gaeta Bay survey was shipped from Texas in a custom container, and its transit took 13 days.

Since its inception a year ago, the team has surveyed Gaeta Bay; Apra Harbor, Guam; and the waters off Ingleside, Texas.

The team consists of three meteorological and oceanographic officers and two to four civilians, all trained in hydrography at the University of Southern Mississippi. “The program at Southern Miss is accredited as ‘Category A’ by the International Hydrographic Organization,” says LCdr. Connon.

The Naval Oceanographic Office created the Fleet Survey Team to fill a need for fast charting of “hot” areas, including areas where the Navy has—or will have—a significant presence, or where existing chart accuracy is questionable.

“Charts are important,” LCdr. Connon said. “You can talk to any CO and navigator in the Navy, and they don’t want to go into any port where the accuracy of the chart is in question. There’s a lot of trust involved in being a chartmaker. The ship is trusting that, when the chart is produced, it’s right. If it’s not, they can run aground. If they run aground, people lose jobs, and equipment gets damaged. It’s not a good day for anyone.”

LCdr. Connon adds that, because the Fleet Survey Team shows up in your port, doesn’t mean current charts are wrong. “The current charts the Navy is operating on are very good, but there’s always room for improvement.” 🌐



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