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MICHAEL L. KATZEV

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On the cover: Michael L. Katzev (1939–2001) was not only one of the founders of INA, but also a great friend of both nautical archaeology and all he encountered. Here he is seen in 1974 sailing a 1:5 fiberglass model of the Kyrenia Ship in Kyrenia Harbor, Crete. Photo (and all other unattributed images in the tribute article) courtesy of Susan Katzev.

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Editor: Christine A. Powell

Ionian Sea Study 2001

Brett A. Phaneuf, Paolo Ciavola,
George Papatheodorou, and George Ferentinos

The United States Navy generously provided the nuclear research submarine *NR1* and its surface support ship, the *SSV Carolyn Chouest*, for a brief geological survey of the north-central Ionian Sea floor in July 2001. The Laboratory of Marine Geology and Physical Oceanography at the University of Patras (Greece), the University of Ferrara (Italy), and the Department of Oceanography at Texas A&M University collaborated in this study.

The survey covered approximately thirty square kilometers in three days, continuously collecting high-resolution side-scan sonar data, CTD data, and digital imagery from down-looking, hull-mounted digital video cameras running parallel transects in an east-west direction. Depths ranged from approximately 650 to 750 meters. The search area was directly between the Italian and Greek peninsulas and was clearly a high-traffic region for ancient

commercial shipping (fig. 1). Virgil described this fabled path in *The Aeneid*.

Immediately discovered was an enormous and previously unknown community of deep-sea coral (*lophelia Petrusa*). The lophelia had formed numerous small and large bioherms, some more than twenty meters in height and several hundred meters long and wide. Since living coral was restricted to the tops of the bioherms, it believed that coral growth was periodically interrupted when the bioherms were covered with sediment flowing into the region due to an upslope mass-wasting event (essentially an underwater landslide).

An ancient shipwreck approximately thirty meters in length was also located during the course of the survey. The visible components included a partially exposed section of the hull, various concretions, and an anchor. Re-

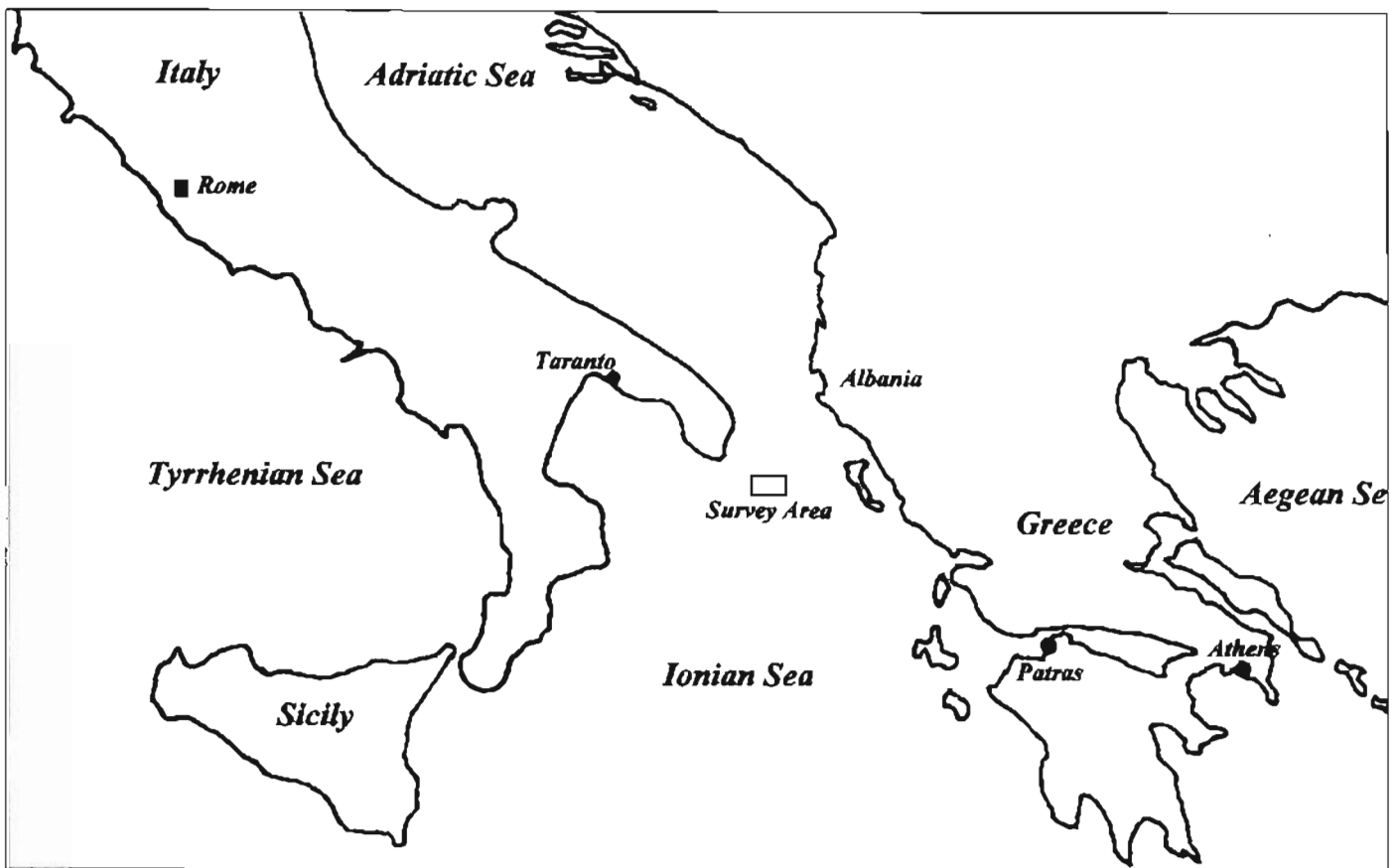


Fig. 1. Map of the Ionian Sea indicating the approximate survey area.

peated imaging with low frequency 150kHz side-scan sonar revealed the presence of a substantial portion of the ship preserved beneath the soft sediment of the ocean floor (fig. 2). Higher frequency imaging (600kHz) revealed only those objects that were exposed on the surface of the seafloor, such as the anchor (fig. 3).

Analysis of the shipwreck images, particularly the anchor, date the site to no later than the fourth century CE, so it is probably Roman. A considerable portion of the hull is buried in the soft sediment and quite possibly well preserved. This argues for a return to investigate the wreck more fully in the near future. ☞

Fig. 2. This scan sonar image was collected at a frequency of 150kHz and allowed scientists to detect objects buried just below the surface of the soft seafloor sediment on the site. A considerable portion of the shipwreck is buried.

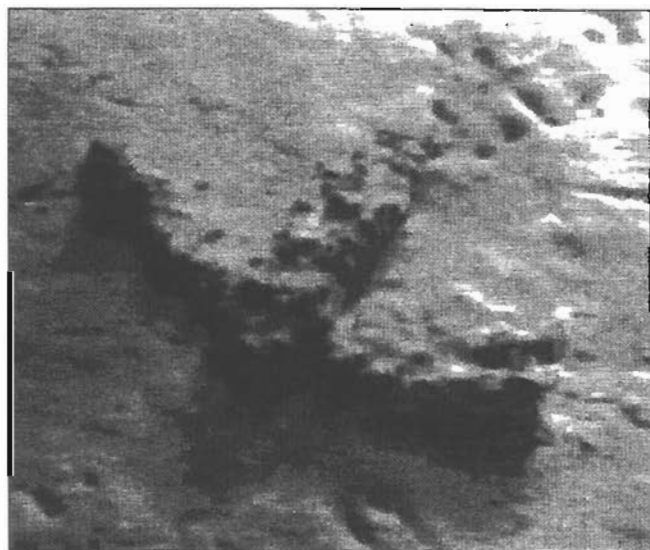
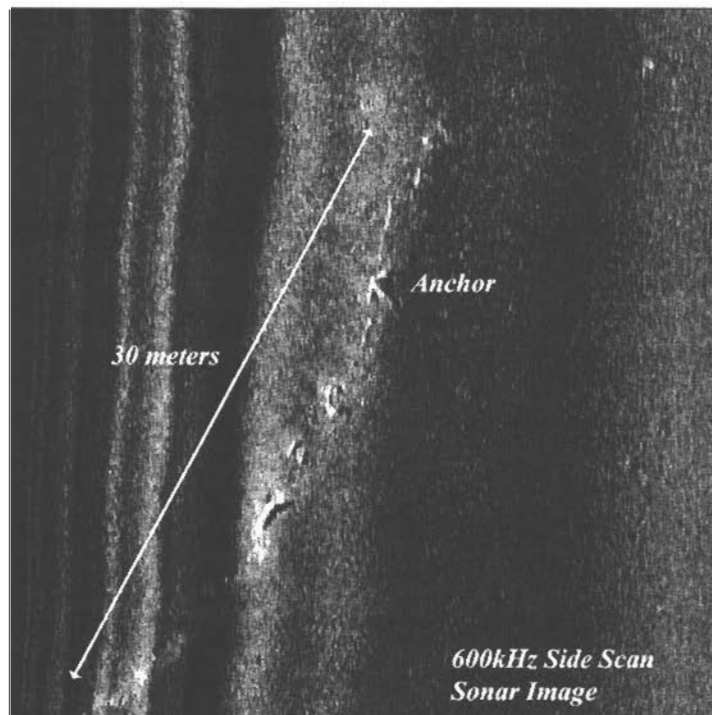
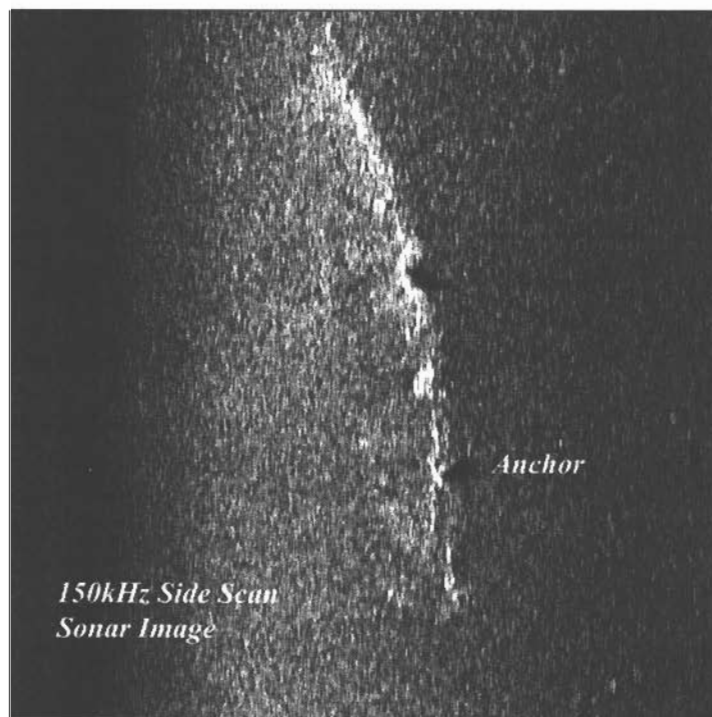


Fig. 3 (above and right). Iron anchor resting on the seafloor atop the remains of the hull of an ancient shipwreck. This sonar image collected at a frequency of 600kHz clearly defines the extent of the site visible on the seafloor surface, including an iron anchor and remains of the ships hull and numerous artifacts.



Brett A. Phaneuf is with the Department of Oceanography, Texas A&M University, Paolo Ciavola with the Department of Geology and Paleontology, University of Ferrara, and George Papatheodorou and George Ferentinos are with the Laboratory of Marine Geology and Physical Oceanography, Department of Geology, University of Patras. All would like to thank their respective institutions and the United States Navy for making this study possible.

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