



Aggie Oceanographers Stay True to Their Roots

Aggie Oceanographers Dr. Jim Brooks '75 and Dr. Bernie Bernard '78 have maintained strong ties with the College of Geosciences, the University, and the vast Aggie network while building a leading scientific services company. Last year TDI-Brooks International, Inc., which they founded in 1996, was recognized by Mays Business School as an "Aggie 100"—one of the 100 fastest-growing companies owned or operated by Texas A&M graduates!

TDI-Brooks provides petroleum geochemistry services, surface geochemical exploration, oil spill response, oceanographic surveys, environmental chemistry services, and multi-disciplinary environmental assessments. Their client list includes most of the major oil companies and many state and federal agencies.

Not only are Brooks and Bernard former students, but a dozen key staff members are Aggies as well. And TDI-Brooks actively cultivates relationships with Aggie scientists through collaboration on multidisciplinary projects. One such project is the company's \$3.16 million contract with the U.S. Minerals Management Service (MMS) for a study of chemosynthetic communities on the lower continental slope of the Gulf of Mexico. TDI-Brooks has pulled together a team of

world class scientists which includes A&M Oceanographers.

The project builds on the discovery of chemosynthetic communities made by the College's Geochemical and Environmental Research Group (GERG) when Brooks was GERG's director. It is a comprehensive study of existing seismic information to locate and characterize chemosynthetic communities, combined with submersible surveys of the ocean bottom.

"Everywhere on the surface of the planet, life exists because of the sun," said Bernard. "All life is driven by photosynthesis—except for these seabed organisms. Communities of marine organisms live around oil and gas seeps on the bottom of the ocean in total darkness, existing on hydrogen sulfide and hydrocarbons alone. They are chemosynthetic."

According to Bernard, nobody knew these life forms existed until about thirty years ago. "But once scientists found them and started studying them, we realized that they've been springing up around oil and gas seeps for about 35 million years. So if you're looking for oil under the ocean, go looking for these critters."

Therein lies the problem. As the existence of chemosynthetic communities became widely known, MMS realized

it needed to protect them and set parameters for drilling near them to ensure they were not destroyed.

"The oil companies are actually very good stewards of the environment these days," Bernard said. "They are extremely serious about protecting these species and complying with restrictions. But MMS needed to have a way to be reasonably sure where communities existed before setting restricted areas for exploration and drilling."

Using 2 and 3-D seismic data which oil companies submit to MMS, the TDI-Brooks team set about confirming what the data was showing. They visited the chemosynthetic communities with the manned submersible *Alvin* and the remotely operated vehicle (ROV) *Jason* with towed camera systems, and documented the communities with chemical sensors, microbiological examinations, and digital video.

According to Bernard this "ground truthing" allowed their team to correlate what they were seeing in the seismic record with what was actually down there, and so far, they've experienced a 100% success rate.

"Our geologist picked 14 sites based on the data and when we visited them with the sub, we found communities at each one," Bernard said.



21 Aggies - including owners Jim Brooks '75 and Bernie Bernard '78 - have helped build TDI-Brooks into a leading scientific services company with strong ties to the College of Geosciences, the University, and the vast Aggie network. Front: Austin McBroom '07, Jim Brooks '75, Sue McDonald '80, Donell Frank '99, Chase Brewster '05. Middle: Roger Fay '73, Kathryn Bradley '08, James Howell '98, Amanda Fryer '06, Juan Ramirez '89. Back: Gary Wolff '77, Jerry Morgan '72, Bernie Bernard '78, Suanne Cardwell '82. Not present: Tom McDonald '80, Chris King '85, Daniel Vitale '86, Mike Kullman '91, Vincent Castro '99, Cassie Rutherford '02, Josh Peschel '98.

The next steps in the project will be to construct models based on their findings and to look at communities in deeper water to determine how water depth affects them and their representation in the data.

With over 160 clients, this is obviously just one of many projects for TDI-Brooks. The team has won contracts from the National Oceanic and Atmospheric Administration, the US Fish & Wildlife Service, and the EPA, and it has been involved in many Natural Resource Damage Assessment

(NRDA) studies. Because of its litigation-quality analytical product, TDI-Brooks' affiliated lab, B&B Laboratories, Inc., is increasingly chosen for NRDA work and is one of only three labs in the U.S. that receive damage assessment samples when an oil spill occurs in U.S. waters. The company just won another \$3.7 million/4 year MMS project studying deep corals on reefs, rigs and wrecks in the Gulf of Mexico. A&M Oceanographer Ian MacDonald will participate in the study and William Bryant's ROV will be used.

TDI-Brooks owns and operates three marine research vessels, has a state-of-the-art laboratory in College Station, and boasts an accomplished staff with a broad range of expertise in geochemistry, environmental chemistry, and in chemical, biological, geological and physical oceanography.

TDI-Brook has supported the College of Geosciences in a variety of ways and anticipates increased activities with the following avenues of support: scientist stipends to support publication of research using provided marine sediment data sets; team membership to interested faculty in multi-disciplinary projects funded by MMS or industry; and hiring students part-time to work in B&B Labs and/or on their vessels during research cruises. Most recently, TDI-Brooks provided ship time to the Oceanography Department which will lead to increased research opportunities in the Gulf of Mexico for our students and faculty.

Aggie owned and Aggie operated, TDI-Brooks uses their maroon education to do great things. The company bleeds maroon!

An octopus on the sampling arm of the manned submersible *Alvin*.

