

# MARINE TECHNOLOGY

REPORTER

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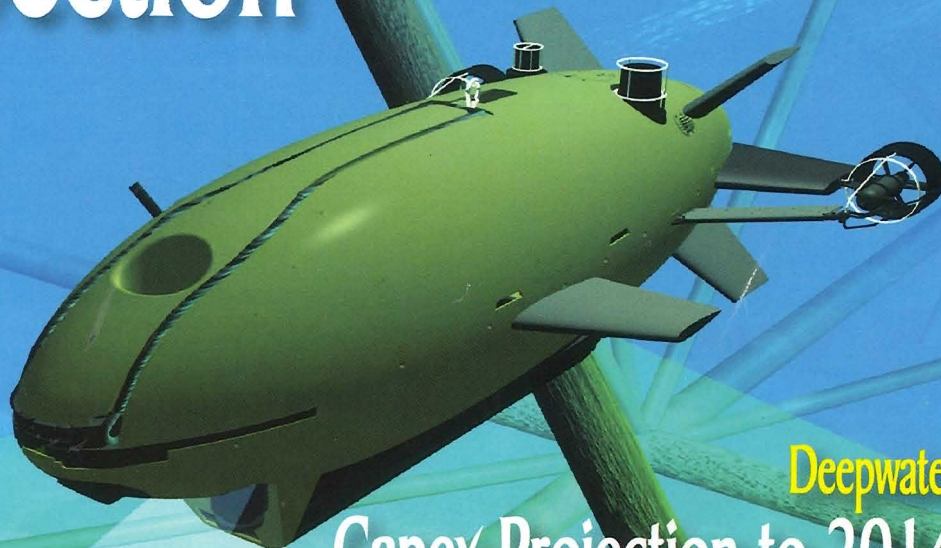
See "Stiletto" at OTE '10



The Stiletto Maritime Test Platform — and five additional boats conducting live, in-water underwater technology demonstrations — will be on display at **OceanTech Expo** in Newport, RI this May 25-27, 2010.

The Growing Role of AUVs in Post Hurricane

# Rig Inspection



Deepwater

Capex Projection to 2014

Offshore Project

Soliton Early Warning System

Profile

**BIRNS**

\*\*\*\*\*AUTO\*\*SCH 5-DIGIT 93033  
192912 2086 MTR1  
AMY BROWN P008  
BIRNS, INC. 000642  
1720 FISKE PL  
DUNNARD CA 93033-1863

## Profile of an innovator

# BIRNS

## Leading and lighting the way underwater since 1957

*Marine Technology Reporter* recently had the opportunity to visit with Eric F. Birns, president of the namesake Oxnard, Calif.-based company which has a very long and colorful history — an a promising future — in providing unique, sound subsea solutions.

**MTR BIRNS is a well established name in the subsea technology market. How did the company get its start?**

When our founder Jack Birns returned from a foreign correspondent photography assignment with Life Magazine, he opened a Los Angeles, CA, camera store back in 1954. The company, Birns & Sawyer, soon began to sell motion picture camera equipment. **In 1957, the company was awarded a contract from the US Navy to design and build underwater motion picture camera housings** — these were first professional underwater camera housings with 400-foot magazines and were used to film secret tests of the Polaris missile ejection system — films that were ultimately reviewed by President Eisenhower.

In 1959/1960, the US Navy awarded the company its first contract to design and build underwater lights. (Thus, 2010 marks a 50-year milestone for BIRNS in serving the U.S. Navy.)

**MTR While BIRNS is well known for its connector technology, this business line wasn't added until the mid 1980s. How did you get your start in this business?**

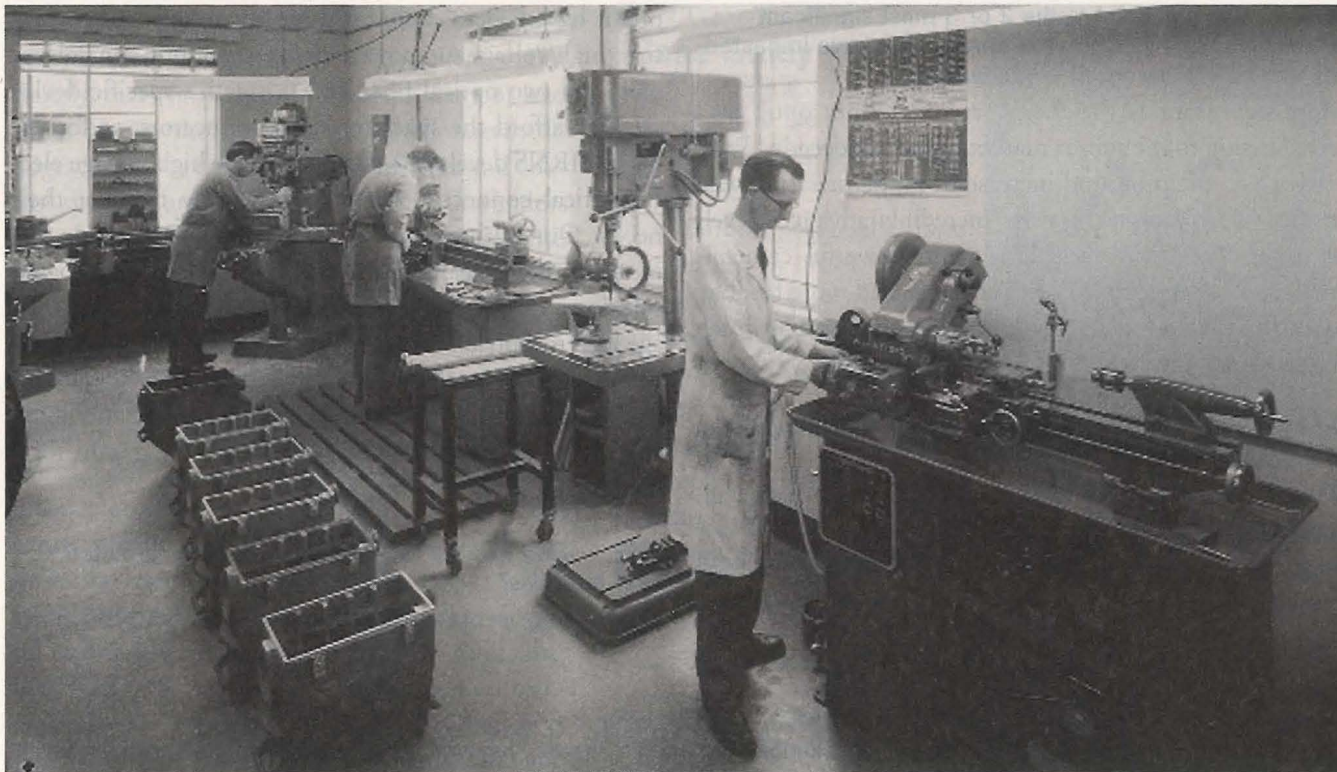
Interestingly, Birns was making connectors for its own use in the mid 1960s — those were connectors for lights that we were making at the time for the US Navy. But, by 1970 we had divested ourselves of connector manufacturing, as we felt at the time that it was somewhat diversionary. So, for the next 20 years, we purchased connectors from outside vendors for use on our lights. However, we were unable to find a consistently reliable source. Product quality was the single greatest challenge that we faced when buying connectors — we experienced major issues, including poor electrical resistance. In fact, in one case, a connector actually blew up while mounted on a diver's

helmet! Luckily, the strength of our light housing contained the explosion and no one got hurt. Thereafter, we naturally felt uncomfortable using that connector vendor ever again. In another significant case, we found evidence of water leakage through the connector itself. When we brought this to the attention of that supplier, we were told that we should have specified the need for open face pressure resistance at the time of ordering.

Since the product quality of the light is totally dependent on that of the connector used in it, we realized that the only way to assure our customers of top quality, high performance lighting products would be for us to produce the connectors ourselves, so we did, beginning in the late 1980s. Soon thereafter, other firms found out that BIRNS was developing and manufacturing connectors, and we increasingly received requests to make connectors for others on a sub-contract basis. By 1990, that part of our business was really well established, and has continued to grow ever since.

**MTR In your estimation, what differentiates BIRNS from other companies serving the subsea sector?**

Our emphasis has always been on the ultimate in product quality and performance. We bring a profound quality focus to our products, in part derived from our decades of experience in another highly specialized and technical industry — developing and manufacturing lighting solutions for the nuclear energy market. (BIRNS lights are used in more than 80% of U.S. nuclear power facilities, in 54% of those in Western Europe; 75% of those in the Benelux countries; 50% of those in Scandinavia, and 25% of those in the Far East.) While we've enjoyed a reputation for reliable, high performance solutions in the subsea market, in lights, connectors and custom cable assembly capabilities, focusing on consistently enhancing our own rigid standards of quality is an ongoing commitment. One thing that sets us apart in the competitive landscape is that we recently achieved ISO 9001:2008 certification, which



**Above**  
Early Birns & Sawyer personnel machining underwater camera housings.

**Right**  
Burn test of 1Kw BIRNS Kelvin lamps.

is tremendously exciting. Another differentiating factor is that BIRNS can provide all the benefits of a boutique sized manufacturing and design firm — so we're able to operate with flexibility and agility, but still bring 'big shop' technology, brand awareness and dependability — while running lean enough to react quickly and be very accessible to our customers. We definitely have a 'best of both worlds' advantage in that respect. Plus, perhaps even more significantly, we are a connector user, as well as a connector manufacturer, which gives us ongoing, special insight to the changing needs of our own customers. For example, from observing the needs of the industry first hand, we developed an elegant solution with our BIRNS Millennium miniature high density metal shell connector series. This series allows the use of 22, 20, 16, 14, 12 and 10 AWG contacts all in the same connector, as a solution for confusing incompatibility issues raised by 'regular' and 'long' sizes available on the market. The BIRNS Millennium series is a high density connector range which we've further adapted to include high voltage, fiber optic, coax, and electro-coax and electro-optical hybrids.



**MTR** Can you point to the 2 or 3 most significant technology advances, in your career, that have impacted the way in which we work underwater?

Most significant is the introduction of fiber optic data transmission to the subsea market in the last decade. Prior to that was the profound increase in miniaturization seen in the industry, allowing users incredibly advanced levels of sophistication in everything from powerful cameras, smaller, more agile ROVs with stronger and more flexible, more functional manipulator arms, to smaller and much higher density connectors and cable assemblies.

**MTR** What are the primary drivers for BIRNS' business in the subsea sector?

Well, the need for smaller, better, faster, more powerful, sophisticated applications is a significant driver of our business — for example, in 2001, the US Navy developed a towed data acquisition device, for which previously they

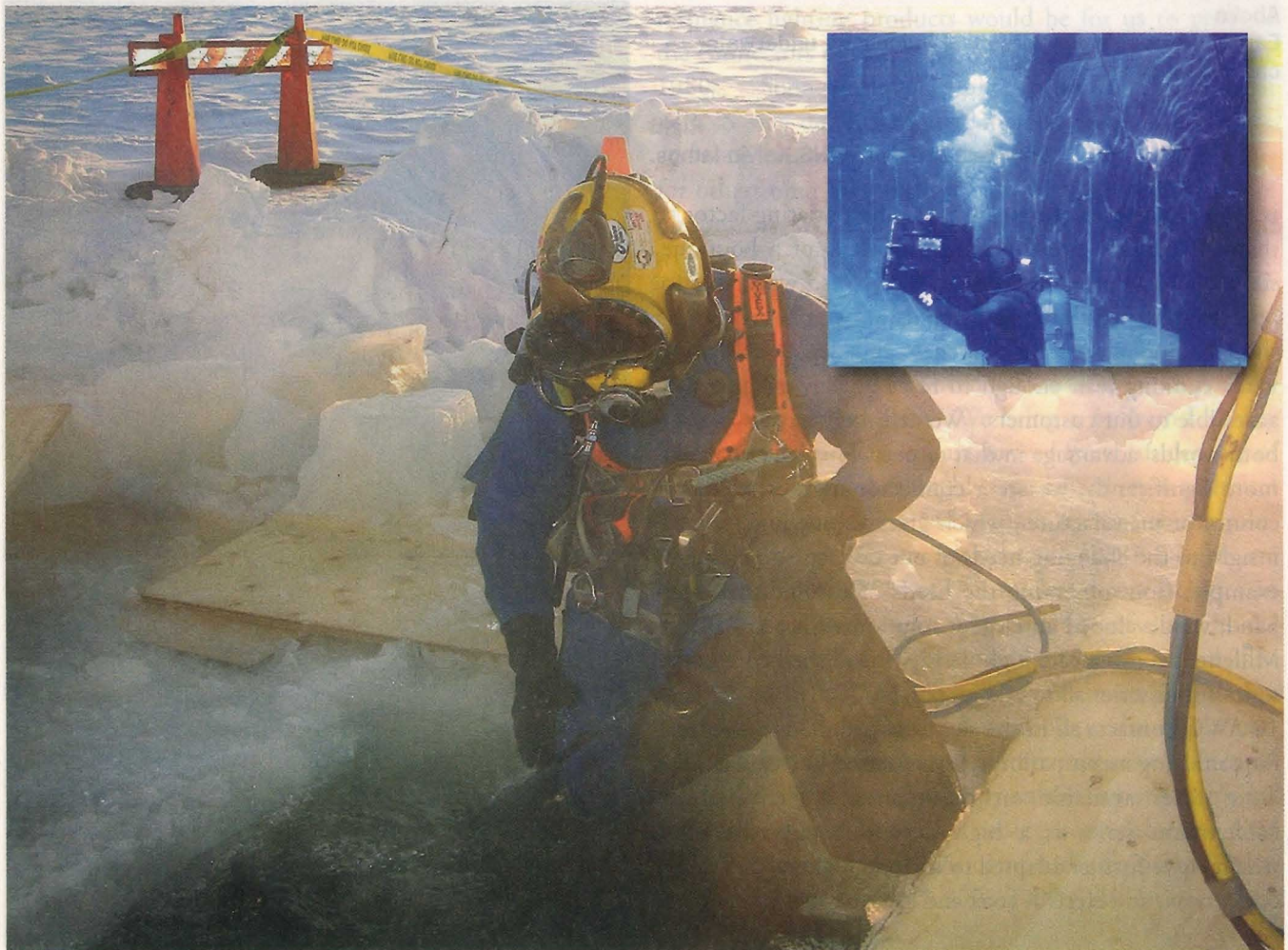
might have had to settle for using three separate connectors: high voltage AC power, low voltage 600v control signals, and two optical fiber lines. But this specific device couldn't afford the space for three connectors, so for the Navy BIRNS developed a unique, single high voltage electro-optical connector and cable assembly to meet their needs. Our business is also driven by the change in the industry that's leaning towards increased hybrid-based solutions. We recently launched a new hybrid, high voltage electro-optical/coax cable assembly with our BIRNS Millennium 3T series that can handle both single and multi mode optical fibers, high and low voltage and deliver elevated bandwidth and power at extreme depths for a wide range of subsea uses.

**MTR** How has the recent economic crisis affected your business?

Many of our suppliers have less work, so their lead times

Diving rescue and salvage operation, Fort Simpson, Canada, using **BIRNS Snooperette**.

**Inset:** Cameraman Jack Cooper ("Man From Atlantis," "Raise the Titanic,") shoots a TV commercial at Marineland with nine BIRNS Snoopers.



have greatly dropped, which in turn allows us to provide that benefit to our customers. But frankly, that's only part of the reason that our lead times are so short. We've invested heavily in upgrades to our manufacturing software and control systems, and work closely with our vendors — with a strong preference to partnering with ISO 9000- certified vendors to eliminate quality issues that could affect lead times.

**MTR What investments is your company making today that are intended for the long-term health of the company?**

We've recently made significant upgrades to manufacturing software and control systems, and across the board enhanced personnel training, from the certification of our processes to ISO 9001:2008, to our diverse team of expert electrical technicians — who are certified IPC Specialists per J-STD-001, and ETA-I certified optical technicians. We're also making strategic additions of skilled personnel in our rapidly growing sales and marketing departments.

We've really invested in increased capacity and capabilities for our in-house testing, as well. Currently we're in the process of upgrading our hydrostatic pressure tank capabilities and capacities, and we'll soon have a total of nine such tanks. Plus, we are now able to perform custom projects like mechanical pull testing in house, to 16,000 pounds, in straight or side loading.

**MTR What are trends driving the subsea business?**

Demands for data delivery — in a few years, it will be increasingly clear that engineers won't be satisfied with the necessity of designing projects factoring in multiple connectors. More and more we're seeing a trend of users seeking a single cable that does it all — and we're the single company that can provide a customized answer to those changing needs.

**MTR What do you consider to be the biggest challenges to your company's continued success in terms of: Legislation? Technical? Competition?**

**Legislation:** Due to environmental concerns and awareness, Birns has embarked on a program of moving to earth-friendly molding materials and packaging formats. But it's not just what is asked

## Case Study **HURL**

In 1980, The Hawaii Undersea Research Laboratory (HURL) was established by NOAA and the University of Hawaii with the mission to study deep water marine processes in the Pacific Ocean. It serves the oceanographic community through peer reviewed research programs focusing on subjects such as ecosystems and fisheries, submarine volcanic processes, coral reefs,



**Happy 2000 HURL Chief ET Chris Taylor with the new BIRNS 40-conductor, metal shell, man-rated cable assembly.**

maritime history, climate change and assessment of environmental damage. HURL maintains two manned submersibles, Pisces IV and the Pisces V, and the organization's primary objective is to provide scientists with access to these subs in order to collect samples and data for their projects. BIRNS has been partnering with HURL since 1986, supplying its subs with penetrators, connectors, molded cables and cable assemblies. In fact, BIRNS' oil filled cable assemblies and oil filled connectors are the only ones approved by ABS for use on HURL submarines. In the middle of the 2000 dive season, when HURL was still operating with only one Pisces sub, the hydraulic system on the craft failed due to water intrusion in an original, non-BIRNS (circa 1972) connector, shorting out the main cable supplying the system with electrical power to operate functions — resulting in aborting a dive. HURL needed a replacement outboard 40-conductor, metal shell, man-rated cable assembly in one week's time. The BIRNS team worked 24 hours a day for seven days, and designed, built, tested and delivered the necessary, complex custom cable assembly on time, saving HURL from having to cancel the rest of the dive season, thereby jeopardizing several significant science projects that had taken years of preparation and effort. "There are a lot of cable and connector providers, but the professional attention we get at BIRNS is unequaled," said Colin Wollerman, Submersible Support Tech at HURL, "I can call up and say 'I need a new negative 120 volt battery cable for the Pisces IV' and have a quote that day, often within the hour. Next thing you know the Fed-Ex truck is dropping off the cable. The phone rings and it is BIRNS making sure it arrived and looks OK. I wish we could get this kind of service from all the vendors we deal with."

of us; we respect the environment, and have changed our molding primers and solvents accordingly. We have a code of ethics that dictates that we be responsible not only for the reliability and quality of our products, but also the way in which we create them.

**Technical:** We welcome technical challenges and see them not as obstacles, but more as an integral part of how our company was created and continues to evolve and improve. That goes back to our ongoing commitment to consistently push the envelope of solutions for the industry demand for increasing miniaturization and hybridization.

**Competition:** First, Birns has such a very strong reputation and market awareness for our wide range of high performance products — we've been fortunate to have a diverse core of very loyal, long term, significant customers — primarily through our reputation and word of mouth.

Thus, historically, our primary focus had been on optimizing our products, R&D, and achieving ISO certification, etc., so our resources and attention were focused on those important goals. Now, however, we're in a position to advertise our skills and products and are taking a more active role in shaping our brand awareness in the industry.

**MTR What is your outlook for the coming year?**

Our outlook for 2010 and beyond is extremely positive — we're poised to leverage the present conditions in the market and our own vastly expanded capabilities, and are presently developing a number of completely new products and services that will help us serve the industry even better. For instance, we plan to soon introduce a new line of standardized, affordable electro-optical hybrid connectors as a supplement to our wide range of custom connector lines, and will be expanding our lines of commercial diving and subsea lighting products to include new, innovative LED options.



← Custom BIRNS 3L4CP (3L size 4 Contact Cable Plug) cable assemblies with special 360 degree electrical shield termination to connector back shell.



→ BIRNS Millennium 3T hybrid electro-coax connectors.



BIRNS Doubly-Safe Chamber Light-LED.



← BIRNS hybrid electro-opto-mechanical work-class ROV tether cable assembly tested to support more than 15,000 lbs.