

VOICE OF THE PACIFIC

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CHAPTERS

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PACON 2003 POSTPONED

PACON International Secretariat has been concerned about the SARS illness in China and in different parts of the world. Although Kaohsiung was safe, other parts of Taiwan were not. In cooperation with the Taiwanese organizers, PACON 2003 Regional Symposium (June 29-July 2, 2003) has been postponed to **November 30-December 3, 2003** subject to SARS clearance by the WHO and the CDC.

On June 17, 2003, the World Health Organization (WHO) "lifted its warning against nonessential travel to Taiwan due to concerns over Severe Acute Respiratory Syndrome." PACON 2003 Regional Symposium will still be held at the Hotel Splendor Kaohsiung on November 30-December 3, 2003.

Please make your room reservations directly with the hotel no later than October 24, 2003.

Please note that we will still accept abstracts after October 1; however, they will be added only to the daily update notice of the technical program posted during the symposium.

We look forward to seeing you at PACON 2003 in Kaohsiung, Taiwan.



Festival parade in Kaohsiung, Taiwan

Important deadlines have changed as follows:

- October 1, 2003: Abstract Deadline
- October 10, 2003: Authors of Accepted Abstracts Notified
- October 10, 2003: Deadline for Exhibit Space Reservation
- October 24, 2003: Hotel Reservation Deadline
- October 24, 2003: Final Date for Early Registration
- October 30, 2003: Remaining Balance of Exhibit Registration Fees Due
- October 30, 2003: Final Date for Cancellations & Refunds

- November 30-December 3, 2003: PACON 2003, Kaohsiung, Taiwan**

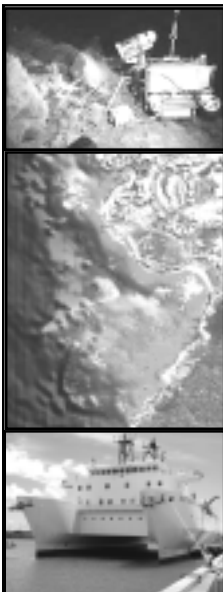
- December 3, 2003: PACON 2003 Full Manuscripts Deadline

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PACON International is a non-profit organization dedicated to the sharing of scientific and technical information throughout the maritime world.



CALL FOR PAPERS

The Technical Program Committee cordially invites papers for presentation at **PACON 2004 (20th Anniversary): *New Technologies, New Opportunities***. If you are interested in submitting an abstract, please contact the PACON Secretariat or check the website at <http://www.hawaii.edu/pacon> for Abstract Guidelines and Abstract Submittal Form. The abstract deadline is January 30, 2004.

OBJECTIVE

The role of marine science and technology in the economic development of the Pacific Basin resources is of vital concern to planners, policy makers, administrators, educators and scholars. The biennial Congress brings together scholars and resource persons to address key issues concerning marine technology related to the ocean's economic potential from a multi-disciplinary perspective. The Congress facilitates an exchange of views and ideas between representatives of all nations thereby strengthening the global exchange of information and collaborative research linkages.

The Eleventh Pacific Congress on Marine Science & Technology

PACON 2004
(20th Anniversary)

May 30
to
June 4, 2004

Waikiki Beach
Marriott Resort,
Honolulu, Hawaii

Photos Courtesy of: (Top) *In situ* Sampling at Loihi, Hawaii Undersea Research Lab, University of Hawaii; (Center) Coral Reef Remote Sensing, Marlin Atkinson, Hawaii Institute of Marine Biology, University of Hawaii; (Bottom) *Kilo Moana* Research Vessel, Gary McMurtry, University of Hawaii, Oceanography Department.

PACON 2004 VENUE & PROGRAM

The Waikiki Beach Marriott Resort (formerly called The Hawaiian Regent at Waikiki Beach Hotel) was also the same location as PACON 2000 conference. They recently completed a \$60 million renovation, including guestrooms, lobby, public areas, and function rooms. For more information about Waikiki Beach Marriott Resort, please check their website at www.marriott.waikiki.com or www.hawaii.edu/pacon.

The PACON 2004 Call for Papers will be mailed in July 2003. The Abstract Deadline is scheduled for January 30, 2004. Details and all updates will be posted on our website at www.hawaii.edu/pacon.

As the theme, *New Technologies, New Opportunities* suggests, a comprehensive technical program will include:

- Advanced Vehicles
- Climate Change
- Coastal and Offshore Engineering
- Coastal Disasters
- Coastal Environmental Problems
- Coastal Sediment Problems
- Coastal Structures
- Coastal Water Level Fluctuations
- Coastal Zone Management

- Coral Reef Science and Management
- Deep Ocean Water Applications
- Education for Marine Science and Technology
- Fisheries Technology
- Harbor Resonance
- Hydrodynamics of Coastal Waters
- ICZM & Resource Management Issues
- International Marine Science Cooperation
- Invasive Species
- Marine GIS
- Marine Biotechnology
- Marine Debris
- Marine Fishery
- Marine Minerals Development
- Marine Physiology
- Marine Policy, Law, and Government
- Marine Recreation and Tourism
- Maritime Partnerships and Governance
- Methane Hydrates
- Ocean Energy
- Offshore Structures
- Oil Spill Technology
- Operational Experiences in Environmental Monitoring
- Petroleum
- Ports and Harbors Sensing and Oceanographic Satellites
- Remote Sensing
- Seafloor Mapping
- Shoreline Changes
- Spratley Islands & International Marine Science Cooperation
- Sustainable Coastal Development
- Undersea Vehicles
- Women in Marine Science, Technology and Policy



THE SEARCH FOR THE WORLD WAR II JAPANESE MIDGET SUBMARINE SUNK OFF PEARL HARBOR, DEC. 7, 1941

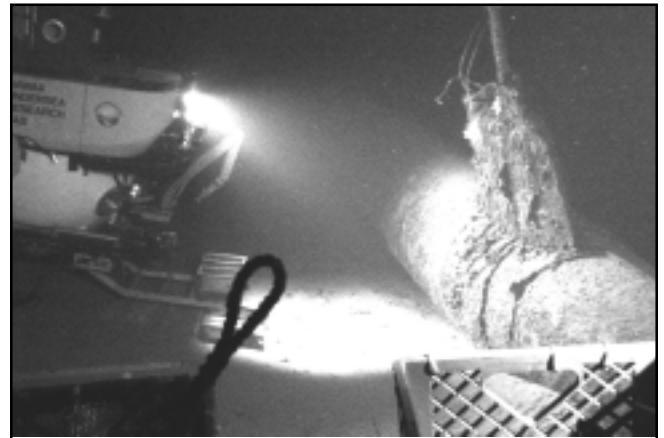
by John C. Wiltshire, Ph. D.

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School of Ocean and Earth Science and Technology
University of Hawaii, Honolulu, Hawaii

Introduction

At 12:20 p.m. on August 28, 2002, the Pisces IV and Pisces V, two deep diving submersibles operated by the Hawaii Undersea Research Laboratory (HURL), found the Japanese midget submarine, which was the first vessel sunk in the attack on Pearl Harbor, December 7, 1941. HURL is one of six national laboratories comprising NOAA's National Undersea Research Program. It is located at the University of Hawaii's School of Ocean and Earth Science and Technology. The sunken midget sub was located during the last of a series of test and training dives conducted annually in the military debris fields off Pearl Harbor. HURL is now undertaking its regular four to five month dive season of scientific and engineering dives focusing on fisheries enhancement, coral reef habitats, undersea volcanism, landslide monitoring, acoustic identification of fish and their habitats and other engineering and oceanographic studies.

This midget sub find has been described as the most significant modern marine archeological find ever in the Pacific, second only to the finding of the Titanic in the Atlantic. The Japanese midget sub was one of five attached to five I-class mother submarines and brought from Japan to be launched 5-6 hours before the aerial attack, within a few miles of Pearl Harbor. Each had a crew of two. The subs were battery powered, 78 feet long, 6 feet in diameter and weighed 46 tons. They carried two torpedoes and a scuttling charge to avoid capture. Although experimental in design, they were very advanced for the time. For short periods, they could run at 20 knots. These midget submarines were completed only months before the attack allowing little time for the crews to train. All of the five submarines comprising the advanced attack force were sunk or captured. The type A midget submarines had a series of basic design problems including trim and ballast control



Pisces V and Japanese midget submarine

and problems both with battery life and battery monitoring. Later redesign, as five man midget submarines of the Koryu class, addressed but did not solve these problems. The Japanese midget submarines although believed at the time to be a potent secret weapon, in actual fact, were never highly effective. So far four of the five original midget submarines attacking Pearl Harbor have been found.

History

The discovery of the midget submarine confirms the account radioed to naval command at Pearl Harbor at 6:45 a.m. on Dec. 7, 1941. A Japanese submarine was shot through the conning tower and then depth charged trying to enter Pearl Harbor behind a cargo ship. The crew of the attacking USS Ward, an older style four stack destroyer, saw the midget sub lifted out of the water by depth charges after firing the fatal shot from its four-inch side gun. The Ward's crewmen were Naval reservists from Minneapolis, Minnesota. Unfortunately, Naval command in Pearl Harbor ignored the Ward's report and the aerial attack began at 8:00 a.m. At the Pearl Harbor investigation, some question was made of the accuracy of the Ward's report. The Ward is now vindicated. The Ward itself was later targeted by the Japanese and sunk in a kamikaze attack, ironically on Dec. 7, 1944, in the Philippines.

Search

The search for the Japanese midget sub has been ongoing for 61 years since it was first sunk. In its latest phase, the Hawaii Undersea Research Lab has conducted towed side

Search for the World War II Japanese Midget Submarine (CONTINUED)

scan sonar surveys of the debris fields off Pearl Harbor. At the end of World War II, obsolete war material was dumped in 1,000-3,000 feet of water several miles off Pearl Harbor. This included landing craft, tanks, old aircraft, trucks, barges, small ships, fuel tanks, etc. There are on the order of 1,000 significant sonar targets in the area. Sorting through these various targets to identify the most promising ones to dive on, as a submersible pilot training exercise has been the work of many years. The Japanese midget submarine although giving a very clear return on the side scan survey was interspersed with other debris on the bottom complicating the search efforts.



World War II Japanese midget sub

Findings

The Japanese midget submarine was found in 400 meters of water about five miles off the mouth of Pearl Harbor. As it is classed as a military gravesite, its exact location is being held by the U.S. State Department. The submarine sits upright on the bottom and is in amazingly good condition as shown in the photos. Both torpedoes are still in place. The submarine has no apparent depth charge damage but does have shell damage on both sides of the conning tower. The port side of the conning tower exhibits what one analyst has identified as shrapnel holes. This would presumably have come from the first shell fired by the USS Ward, which exploded near the submarine but did

not directly hit it. The starboard side of the conning tower shows a hole from the four-inch shell fired by the side gun on the Ward as the ship steamed past. Apparently, this shell did not explode on impact as the midget sub conning tower is clearly still in place. While four depth charges were dropped directly on the midget as the Ward passed by, the charges were set to go off at a depth of 100 feet and the submarine was at the surface. The pressure wave created by the four depth charges was sufficient to fully lift the 46 ton, 78 foot midget out of the water, but did no visually apparent structural damage. The midget sub sank from flooding through the four-inch shell hole.

Questions

A number of questions still remain over this submarine, which was the first casualty in the war between the U.S. and Japan. Can and should it ever be raised, perhaps to join the USS Missouri forming the bookends for the Pacific war, that is, the first shot and the final surrender? Why did the Naval command at Pearl Harbor apparently ignore a confirmed enemy sinking right off its harbor mouth? Why did the Japanese put so much faith in the five midget submarines that they were allowed to lead the Pearl Harbor attack? After all five of the attacking midget submarines were lost in their first engagement and shown to be ineffective, why did the Japanese Imperial Navy go on to build hundreds of midget submarines most of which were never used?

Raising the Midget Sub

It is unclear if the submarine will be raised or if its resting site will become a marine sanctuary. Discussions are ongoing between the United States and Japanese governments. It would be technically feasible, although difficult and expensive, to raise the submarine. Recent efforts have raised the sunken Russian submarine Kursk in arctic waters off northern Russia as well as the partial raising of the sunken Japanese fisheries training vessel Ehime Maru off Hawaii. Both of these efforts were more complicated and involved larger vessels than the Japanese midget submarine. The Kursk efforts involved a nuclear reactor and live and damaged torpedoes. Complications involved in raising this Japanese midget sub include the two

Search for the World War II Japanese Midget Submarine (CONTINUED)

torpedoes and the scuttling charge as well as the necessity of maintaining structural integrity on a possibly damaged hull. Initial speculation on a salvage plan has focused on making the midget sub close to neutrally buoyant. Pumping compressed air or foam into the hull through the shot hole might be done. The midget sub could then be gently nudged onto a 90-foot long pallet and secured. The pallet would then be gently lifted and towed to shallower, protected waters where divers could arrange a lift to the surface under optimal conditions.

Future

Long before any decision or plans could be formulated to raise the midget submarine, the site will need to be thoroughly photographed and surveyed. There is some possibility that an underwater endoscope used to explore the interior of the submerged wreck of the USS Arizona at Pearl Harbor might be deployed from the Pisces submersibles to explore the interior of the Japanese midget submarine through the shell hole. As the shell hole is quite small, this may prove to be operationally impossible. Further research at the site will certainly clarify the subs condition and provide valuable information for future groups contemplating raising the midget submarine. In all cases, future exploration must proceed with the greatest respect and care for this submerged wreck, recognizing it as a war grave site likely containing the remains of the two Japanese crew, the first casualties in the Pearl Harbor attack.

OCEAN DAY 2003

The Ninth Annual Ocean Day 2003 theme this year was “*Ocean Industries—Their Economic and Environmental Impact.*” This annual event presented by PACON International, National Defense Center of Excellence for Research in Ocean Sciences (CEROS), Ocean Resources Branch/DBEDT, State of Hawaii, and Hawaii Chamber of Commerce, Marine Section was successfully held at the Renaissance Ilikai Hotel on Wednesday, June 4, 2003. Capt. Robert Murray, Ocean Day Chair, did another excellent job in planning Ocean Day

OCEAN DAY 2003 (CONTINUED)

and bringing together the following speakers:

Robert Murray, Ocean Day Chair
“*Ocean Day Voices of the Past*”

Thomas E. Farewell, Oceanic Institute
“*Breeding and Production of Marine Shrimp*”

Chris Woolaway, Hawaii Sea Grant Extension,
University of Hawaii, “*Northwestern Hawaiian Islands
Cleanup: A Multi-Partner Effort*”

Dean Toda, Aquaculture Development Program, State
Department of Agriculture, “*Aquaculture in the New
Millennium, Do We Fish, Cut Bait or Farm?*”

Brian Taylor, Department of Geology & Geophysics,
University of Hawaii, “*Oceanographic Research
on the New R/V Kilo Moana*”

George Andermann, Chemistry Department, University
of Hawaii, “*Marine Ferro-Manganese Crusts for Air
Pollution Control – Potential for a Giant New
Industry for Hawaii*”



Ocean Day speakers: Bob Murray, Brian Taylor,
George Andermann, Dean Toda, and Chris Woolaway
(Missing: Thomas Farewell)

Our Special Thanks given to the following Sponsors and Silent Auction Contributors:

Sponsors: Alexander & Baldwin, National Defense Center of Excellence for Research in Ocean Sciences (CEROS), Ocean Resources Branch/DBEDT, State of Hawaii, and Hawaii Chamber of Commerce, Marine Section.

Silent Auction Contributors: DFS Galleria, Duke's Canoe Club Waikiki, Matson Navigation Co., Roberts Hawaii, Sause Bros, Waikiki Beach Marriott Resort, Watanabe Florist, and Wyland Galleries.

MTS HAWAII AND PACON HAWAII CHAPTER DINNER MEETINGS

The Hawaii chapters of Marine Technology Society (MTS) and PACON International had a dinner meeting at the Maple Garden Restaurant on October 10, 2002 with a presentation by Dr. John C. Wiltshire, Interim Director of Hawaii Undersea Research Laboratory, UH School of Ocean and Earth Sciences and Technology (SOEST) on "The Search for the Japanese Midget Submarine Sunk Off Pearl Harbor, December 7, 1941."

Capt. Charles W. Green arranged a special dinner and tour of the ship USNS SUMNER on July 15, 2003 for the Hawaii sections of MTS and PACON International members. The ship is currently docked in Pearl Harbor, Hawaii. "The USNS SUMNER (T-AGS 61) was designed and constructed to provide multi-purpose oceanographic capabilities in coastal and deep ocean areas including: physical, chemical, and biological oceanography; multi-discipline environmental investigations; ocean engineering and marine acoustics; marine geology and geophysics; and bathymetric, gravimetric, and magnetometric surveying."

CURRENT BOARD OF DIRECTORS

At the Twelfth PACON International Board of Directors meeting in July 2002, new Board members were welcomed—Elizabeth Corbin, Margaret Davidson, Russell A. Moll, Norman Estabrook, and Frank Whipple. Here is the current list of the 23 PACON International Board of Directors:

Dr. Dietrich Bengen, Pryoyele Pesisir-PKSPL IPB, Indonesia
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 Mr. John Carey, USA
 Dr. Ju-Chin Chen, National Taiwan University, Taiwan
 Ms. Elizabeth Corbin, DBEDT, Ocean Resources Branch, USA
 Dr. Jack Davidson, USA
 Ms. Margaret Davidson, National Ocean Service, NOAA, USA
 Mr. Norman Estabrook, SAIC, USA
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 Prof. Ying Wang, Nanjing University, China
 Capt. Frank Whipple, Hudson Marine Mgmt. Services, USA
 Mr. Yang Wenhe, State Oceanic Administration, China

2002/2003 MEMBERSHIP

We welcome our new members:

Life Members:

Dr. Robert W. Bander, University of New South Wales, Australia
 Dr. Matthew H. England, Univ. of New South Wales, Australia
 Dr. Emma L. Johnston, University of New South Wales, Australia
 Prof. Cha-kyum Kim, Namhae College, Korea

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 Mr. Michael Lueck, Brock University, Canada
 Dr. James B. Marsh, University of Hawaii at Manoa, Hawaii, USA
 Ms. Chi-Fang Wang, National Taiwan University, Taiwan

We also welcome back our renewing members:

Mr. Neil W. Baird, Australia
 Ms. Sharon K. Buehler, CEA Technologies, Inc., California, USA
 Prof. Ju-chin Chen, National Taiwan University, Taiwan
 Dr. Joseph C. Huang, US Dept. of Energy, Washington, DC, USA
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We would like to thank Dr. Albert Y. Kuo for referring Prof. Hsu and Ms. Wang, Dr. Lorenz Magaard for referring Dr. Marsh, and Dr. John Benzie for referring Drs. Johnston, Brander, and England for PACON memberships.

HAVE YOU RENEWED YOUR MEMBERSHIP FOR 2003/2004?

It is time to renew your membership if it expired on June 30, 2003. PACON International annual membership is effective from July 1 to June 30. Please send your renewal by filling out the application form in this newsletter. If you have a colleague who is interested in joining and plans to attend our PACON 2004 conference, then please send them the membership application form or refer them to our website at www.hawaii.edu/pacon so that they can also receive the benefits.



PACON INTERNATIONAL
MEMBERSHIP APPLICATION FORM

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- Individual Member US\$60.00 (Two-years) Life Member US\$350.00 Full Corporate US\$850.00
- Individual Member US\$30.00 (One-year) Associate Corporate US\$350.00 Introductory Corporate US\$350
- Associate Member US\$20.00 (College Students & Non-Ocean Field Individual for One-year)

Individual, Life, and Associate membership entitles you to:

- Quarterly Newsletters
- Conference Abstracts
- Discounts on Congress registration and publications
- Access to PACON's technical representatives and libraries

Full Corporate membership entitles you to:

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- 1 Full Complimentary Registration (if they choose to exhibit)*
- 5 Session-Only Passes (if they choose to exhibit)*

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*For Annual Congress & Symposia

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PACON International is a non-profit organization dedicated to the sharing of scientific and technical information throughout the maritime world.

Chapter News

PACON has spanned the globe with chapters in Europe, the U.S., Asia and the Pacific. In order to keep pace with happenings in our diverse community, we would like to encourage members to submit announcements of upcoming events, conferences, Chapter activities, and articles of interest to our membership.

Mail to: Chapter News,
PACON International, POB 11568,
Honolulu, HI 96828-0568, USA.

Submittals:

Email to: pacon@hawaii.edu

If sending email transmittal, please send as MS Word Attachment. Photos should be sent via email as jpeg files or by mail.

Technical Papers

Technical papers are welcome for publication in the Voice of the Pacific. Please send electronic file - MS Word document via email or on disk by mail. Papers should be 2-3 pages in length and be of interest to the PACON community and others in the marine science world.

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PACON International (Pacific Congress on Marine Science and Technology, International) was created following two successful marine science and technology Congresses held in Honolulu: PACON 84 and PACON 86. Since then, PACON has held major Congresses in Hawaii, Australia, Japan, and Korea. The next major Congress, PACON 2004, will be held in Hawaii. Regional Symposia have been held in Hawaii, Beijing, China, Hong Kong, Russia and California; PACON 2003 Regional Symposium will be held in Kaohsiung, Taiwan.

PACON International Mission Statement:

PACON International is an international non-profit professional marine science and technology society dedicated to the sharing of scientific and technical information among those interested in the future of the world's oceans with a Pacific focus.

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