**PACON 2004 HIGHLIGHTS**

The Eleventh Pacific Congress on Marine Science and Technology, PACON 2004: *New Technologies, New Opportunities* was held at the Waikiki Beach Marriott Resort & Spa in Honolulu, Hawaii on May 30-June 4, 2004. On Monday, May 31 at the PACON 2004 Opening Ceremony, Dr. Richard W. Spinrad, Assistant Administrator for Ocean Services and Coastal Zone Management, National Oceanic and Atmospheric Administration (NOAA) and PACON 2004 Honorary Chair (USA) declared PACON 2004 opened. Dr. Ho-Shong Hou, Adviser to the President of Taiwan, represented Mayor Frank Hsieh, PACON 2004 Honorary Chair (Taiwan) and presented his message. Senator Daniel K. Akaka, U.S. Senate, State of Hawaii sent a video with a special message for PACON 2004. Senator Akaka welcomed the delegates to Hawaii and reported on the U.S. Commission on Ocean Policy, which was released in April 2004. Dr. Lorenz Magaard (Executive Associate Director for the International Pacific Research Center, SOEST, University of Hawaii at Manoa) who represented Dr. Peter Englert (Chancellor of the University of Hawaii at Manoa and PACON 2004 General Co-Chair) and Mr. Steve Bretschneider (Deputy Director, State of Hawaii, Department of Business, Economic Development & Tourism) who represented Mr. Theodore Liu (Director of DBEDT and PACON 2004 General Co-Chair) welcomed the delegates to PACON 2004. Senator Calvin Kawamoto, Hawaii State Senate and Councilmember Ann Kobayashi, City & County of Honolulu made special presentations and congratulated PACON International for our 20th Anniversary celebration. Dr. Narendra Saxena, Founding President of PACON International informed the delegates “many changes are in the planning stage to make PACON a member-oriented society.” PACON International Board of Directors approved resolutions for current members who will have voting privileges on President-Elect elections. Dr. Saxena also announced student awards for the top three papers presented will be honored at PACON 2005 in Sydney, Australia. These awards

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PACON 2004 (Continued)

were made possible by donations from a PACON Life member. Further details will be posted on our website. Dr. Kenji Hotta, President of PACON International, provided a current status report of PACON International and concluded the Opening Ceremony. He reported on this year’s Board of Directors meeting discussing PACON’s Assessment (prepared by Mr. Norman Estabrook) for future advancement. Dr. Hotta also announced the Seventh Regional Symposium, PACON 2005, will be held in Sydney, Australia and the Twelfth Pacific Congress on Marine Science and Technology, PACON 2006 will be held in Germany.

Dr. Richard W. Spinrad from NOAA presented our first Keynote Address for the day. In his presentation entitled Global Leadership, Global Opportunities, he spoke about how the U.S. Commission on Ocean Policy reported “some 200 recommendations covering a full range of ocean-related issues including governance, management, water quality, coastal habitats, education, fisheries, and the U.S. role internationally.” Dr. Spinrad highlighted the Commission report “calls for the U.S. to double the federal ocean and coastal research budget over the next five years, from the 2004 level of $650 million to $1.3 billion per year.”

Our Luncheon Speaker, Mr. Jeffrey R. Stone, talked about Ko Olina Resort & Marina—The Development of an Ocean Front Resort Community. He is the President of Ko Olina Resort & Marina in Hawaii. Many of our delegates at the luncheon were impressed with his future plans for an ocean community in Hawaii.

On Tuesday, June 1, 2004, Dr. Robert H. Richmond from Kewalo Marine Laboratory, Pacific Biomedical Research Center, University of Hawaii presented the second Keynote Address on Technologies and Opportunities to Protect Coral Reef Ecosystems in the Pacific. He said by “integrating technological advances with traditional management schemes and societal structures that are well established within the Pacific Islands, great opportunities exist to manage human activities that are responsible for coral reef degradation.” He also mentioned the importance of scientists taking the responsibility to “meet the challenges of translating research into policy and action if we are to leave a decent environment legacy to future generations.”

Dr. Ho-Shong Hou, Adviser to the President of Taiwan, presented our third Keynote Address on June 2, 2004. He discussed the Planning of Taiwan District as a Sea Transportation Hub in the Asia-Pacific Region.
PACON 2004 (Continued)

After the Keynote Address, Professor John Black from the University of New South Wales, gave a short announcement about PACON 2005 Regional Symposium, which will be held in Sydney, Australia.

On June 3, 2004, Dr. Ronald M. Weiner, presented our fourth Keynote Address on The Promise of Marine Biotechnology, Illustrated by a Missing Link in the Carbon Cycle Equation. Dr. Weiner is an Emeritus Professor in the Department of Cell Biology and Molecular Genetics at the University of Maryland, USA.

PACON 2004 had 21 technical sessions, two workshops, and two forums. More than 160 delegates participated from eleven countries that include Australia, Canada, China, Germany, India, Japan, Korea, Mexico, Philippines, Russia, Taiwan, Turkey, and USA. There were more than 90 presented papers with about 73 papers recommended for possible inclusion in the Recent Advances in Marine Science and Technology 2004 refereed publication.

PACON International would like to especially thank all of our sponsors who made it possible to celebrate our 20 years. Our major sponsors include the California Sea Grant College Program, Coastal Zone Management Hawaii, Department of Business, Economic Development & Tourism/Ocean Resources Branch, National Ocean Service/NOAA, Office of Naval Research International Field Office, Office of Sustainable Development & Intergovernmental Affairs/NOAA, Chancellor’s Office of University of Hawaii at Manoa, and School of Ocean and Earth Science and Technology (SOEST), University of Hawaii at Manoa. Our contributing sponsor was the National Defense Center of Excellence for Research in Ocean Sciences (CEROS) and society sponsor was the Hawaii Academy of Science (HAS).

We hope to see you next year at PACON 2005 in Sydney Australia!

PACON 2004 AWARDS BANQUET/20TH ANNIVERSARY CELEBRATION

The PACON 2004 Awards Banquet/20th Anniversary Celebration was held on the evening of June 1. Our special guests and participants from PACON 2004 truly enjoyed the Hawaii Youth Opera Chorus, a group of young girls up to high school students sang and danced to Hawaiian music and classical tunes. The Conductor was Ms. Nola Nahulu and Accompanist was Ms. Wendy Chang. A special slide show, prepared by Ms. Elizabeth Glover, was presented to our audience in place of a banquet speaker to commemorate our 20th Anniversary Celebration. Photos from PACON 84 through 2003 brought back memories for some of our delegates. Ms. Elizabeth Corbin introduced and presented a plaque to our PACON International Founders: Mr. Reb Bellinger, Mr. George Curtis (not present), Mr. Jack Harmon, Dr. Sherwood Maynard, and Dr Narendra Saxena. Dr. Maynard explained how and why PACON was developed from the beginning.

Dr. Yoshifusa Yamada (PACON Japan Chapter Chair) read messages from three Japan Ministries: Ministry of Economy, Trade, and Industry, Ministry of Land, Infrastructure and Transport, and Ministry of Agriculture Forestry and Fisheries to congratulate PACON for their 20th Anniversary.
The evening concluded with the awards given to those who deserved the following:

**PACON Lifetime Achievement Award**
- Dr. Narendra Saxena

**PACON International Award**
- Dr. Young C. Kim

**PACON Fellow**
- Mr. Norman Estabrook
- Dr. Sherwood Maynard
- Dr. Shigehisa Nakamura
- Dr. Richard Podgorny
- Professor Ying Wang

**PACON Service Award**
- Ms. Elizabeth Corbin
- Dr. Koichi Masuda
- Dr. Mitsuo Takezawa
- Dr. Ki-Dai Yum
- Dr. Tai-Wen Hsu

**Ocean Service Award**
- Mr. Norman Estabrook

**Distinguished Member Award**
- Dr. Hans-Diethard Knauth

For the PACON Lifetime Achievement Award, Dr. Narendra Saxena received a Koa wood box with a special engraved message and digital camera for his travels during his retirement. The PACON International Award was given to Dr. Young C. Kim this year for his significant contributions to ocean science and technology. He received the certificate award and a gold plated Mont Blanc Roller Ball Pen. The Board of Directors approved both of these special awards.

A long-time supporter and incredible friend of PACON International, Captain E. Chipman Higgins passed away on Sunday, July 25, 2004 at the age of 79. Chip served on the PACON International Board of Directors since 1992. He also served as Chair of Legislative Affairs on the Executive Committee since 1993. Chip had been a PACON Life member since 1992 and served in past years as the PACON Hawai‘i Chapter Chair and Secretary. In the early stage of PACON, he funded the operations and did this several other times to support us and generously donated to the PACON Endowment Fund.

Chip was born on March 21, 1925, in New York. He gave 27 years of service to the United States Navy where he rose to rank of Captain. He worked on projects such as the Polaris system, which were the first submarines armed with nuclear ballistic missiles during the Cold War. After Chip retired from the Navy he joined the Hawaiian Electric Company as Director of Energy Supply, where he developed and implemented alternate energy sources. He also worked on bringing geothermal energy and ocean thermal energy conversion technology to the Big Island of Hawaii, and wind power to Oahu.

Chip later became the Energy Advisor to Hawai‘i Governor George Ariyoshi and other state legislators. Chip also was the President of the Honolulu Navy League and was a Director with the National Navy League. He also was the Governor of the Mayflower Society.
Chip Higgins (continued)

We would like to send our deepest condolences to his wife Barbara and family. He will be greatly missed by all. He was a true believer of PACON!

BOARD OF DIRECTORS MEETING

The Fourteenth Board of Directors meeting was held on June 4-5, 2004 at the Waikiki Beach Marriott Resort in Honolulu, Hawaii. Dr. Kenji Hotta, President and Dr. Ho-Shong Hou, President-Elect expressed their future plans for PACON International. The main topics and issues the Board discussed are as follows:

- Mr. Norm Estabrook presented to the Board members a five-page PACON Assessment. He prepared an objective assessment on PACON issues. This written assessment discussed the status, the future, and recommendations of PACON. The Board heavily discussed this assessment and made many suggestions.

- The Board wrote down the structure and key issues on flip charts in order to capture these ideas and to discuss further from the PACON Assessment. The key issues were Strategy/Actions, PACON Mission, Conferences, Chapters, and Growth Plan.

- From these five charts, an action team was formed to revisit our mission statement and resulted in forming four committees: Business Plan, Conference, Industry, and Chapter Committees. These committees were assigned a task to submit outlines as a first step of action.

- The Conference Committee Chair will ask Chapter Chairs and PACON International members for suggestions of “Hot Topics” to have at future conferences.

- The Chapter Committee will create a Chapter Guidebook to assist and expand the chapters.

- PACON International By-Laws will be amended from 51% quorum to 33% quorum, which the Hawaii Revised Statute (HRS) does allow a quorum as little as one third.

- Since PACON International is licensed in Hawaii, the HRS applies to Board decisions by coming together to meet (physical presence) or by unanimous written consent. A two-tiered Board will be developed as Board of Directors with voting rights and Advisory Board with no voting rights in order to meet the requirements by HRS for a non-profit organization voting on Board decisions.

- President-Elect Committee (a nomination committee) was formed to find our next candidate since our new President-Elect Dr. Ho-Shong Hou will become the new President in 2005.

- PACON will provide new student awards at PACON 2005. Details will be announced later on our website.

The next Board of Directors meeting will be held on July 21, 2005 after PACON 2005 in Sydney, Australia.

PACON 2005 REGIONAL SYMPOSIUM

The Seventh Regional Symposium, PACON 2005 will be held at the University of New South Wales in Sydney, Australia on July 17-20, 2005. The Call for Papers will be posted on our website soon. The theme next year will be Sustainability of Estuaries and Bays. The abstract guidelines will be posted on our website: www.hawaii.edu/pacon soon. The abstract deadline is February 28, 2005.

PACON OFFICERS AND EXECUTIVE COMMITTEE

Dr. Narendra Saxena, Founding President, will reduce his time with PACON and spend more on his other projects. Therefore, both the Board of Directors and Executive Committee will be more active.

We also would like to thank Dr. Sherwood Maynard who is currently on the Executive Committee for accepting to be our temporary Treasurer and for helping the PACON Headquarters.
An Introduction To Tainan Hydraulics Laboratory

By Dr. Hwung-Hweng Hwung
Professor of Hydraulics & Ocean Engineering Department
Director of Tainan Hydraulics Laboratory
National Cheng Kung University, Tainan, Taiwan

Brief History
Tainan Hydraulics Laboratory (THL) was first founded by a joint venture between the Water Resources Agency, Ministry of Economic Affairs and National Cheng Kung University in 1950. Conducting physical modeling to find solutions for coastal engineering related problems and helping university with teaching have been THL’s primary functions since. Later on, the numerical simulation, information technology as well as field investigation were formally included as parts of THL’s research fields. Due to extended research needs, THL was reorganized in 1995 and moved to An-Nan campus in 2000 when the super tank and the wider basin for physical modeling had been constructed. Furthermore, land-subsidence protection and reclamation corps as well as water problems enterprise information and incubation center are two new members that have once again broaden THL’s research field. Land-subsidence caused by overdrawing the groundwater for aquaculture use, together with water conservation, reuse, and other water resource related issues are drawing more and more attention nowadays in Taiwan due to water shortage problem.

Current Status
Presently, THL consists of five divisions, one corps, and one center, as shown in Figure 1, with about 110 employees. A little more than 10% of the employees have a doctoral degree, and around 20% of the rest have a master’s degree. The average annual budget is around four million U.S. dollars for the past decade.
Major Facilities
On the eleven-hectare land at An-Nan campus of National Cheng Kung University, THL has set up the state-of-the-art experimental facilities for both fundamental and applied researches that include:

A. Super Tank & Mid-size Observation Flume

- A 300 m long, 5 m wide and 5 m deep flume (Super Tank), equipped with a dry back, piston type, active wave absorption, electro-hydraulic servo feedback control system wave generator, capable of producing waves up to 1.0 m, as shown in Figure 2.

B. Physical Model Basins

- A 150 m long, 60 m wide and 1.5 m deep physical model basin, equipped with 10 units long crest wave generators operating through an electro-hydraulic servo feedback control system, capable of producing waves up to 0.3 m, as shown in Figure 4.

- A 50 m long, 40 m wide and 1.0 m deep physical model basin, equipped with long crested wave generators, capable of producing waves up to 0.2 m.

C. Thermal Diffusion Basin

- A 50 m long, 16 m wide and 0.6 m deep thermal diffusion Basin, equipped with logical-controlled heating system and current generator, capable of producing thermal discharge up to $1.5 \times 10^{-3}$ cms. Up to 120 channels of thermal couples are available, as shown in Figure 5.
D. Offshore Observatories with Oceanographic/Meteorological Sensors (shown in Figure 6)

E. Water quality lab accredited by Taiwan EPA (shown in Figure 7)

Figure 6 One of the Offshore Observation Piles

Figure 7 One View of Water Quality Lab

Capabilities
Currently, THL is capable of performing various research tasks and offering services, such as:

- Field survey planning and implementation
- Water quality sampling and testing
- Physical hydrodynamic or coastal structure modeling
- Thermal diffusion modeling
- Fundamental fluid dynamics experiments
- Numerical simulations for coastal hydraulics, sediment process, hydrology, and environmental hydraulics
- Information systems planning and developing
- Land subsidence investigation and consulting
- Incubation for water utilization/measurement related technologies

Future Goals
In the past two decades, THL has grown from a small laboratory with less than 20 employees to a sizable research center. However, the future is always a challenge. In the coming years, several goals are set to achieve, such as developing feasible ecologic engineering measures for coastal protection, cooperating with other ocean institute on the offshore aquaculture subject and promoting the deep-ocean water utilization in eastern Taiwan. Moreover, being a member in the Asia Pacific, THL would also like to get more involved in the international affairs to promote the common welfare of the area in the future.

OCEAN DAY 2004

The Tenth Annual Ocean Day 2004 was held on June 2, 2004 at the Waikiki Beach Marriott Resort in Honolulu, Hawaii with this year’s theme on “Marine Biotechnology.” Our new Ocean Day Co-Chairs for the first time were Kevin Kelly from EPSCoR Hawaii, University of Hawaii at Manoa, and Elizabeth Corbin from Ocean Resources Branch, Department of Business, Economic Development & Tourism, State of Hawaii. Ocean Day Proclamations were presented from Governor Linda Lingle and Mayor Jeremy Harris.
Ocean Day 2004 (continued)

Kevin Kelly planned an excellent program that included the following speakers:

Senator Norman Sakamoto, State of Hawaii, Senate
JoAnn Leong, Director, Hawaii Institute of Marine Biology, University of Hawaii at Manoa
Gerry Cysewski, President & CEO, Cyanotech
Bob Bidigare, Director, Center for Marine Microbial Ecology & Diversity
Tony Clapes, Principal, Technology Network

Special Thanks goes to Kevin Kelly, Elizabeth Corbin, and our Silent Auction Contributors: Ala Moana Hotel/Plantation Café, Atlantis Submarines, DFS Galleria, Ice Palace Ice Skating Arena, John Dominis, Kuhio Beach Grill Restaurant at Waikiki Beach Marriott Resort, L’uraku, Outback Steakhouse, Roberts Hawaii, Dr. N. Saxena, Waikiki Beach Marriott Resort, and Wyland Galleries.

You are cordially invited to our next Ocean Day 2005 event on June 1, 2005 (location to be determined). Check our website for all updates.

NEW/RENEWED MEMBERSHIP

New Life Members:
Dr. James J. Sullivan, Del Mar, California, USA (referred by Dr. Jack Davidson)
Dr. Michael D. Crosby, National Science Foundation, Arlington, Virginia, USA

New and Renewing Members from PACON 2004:
Mr. Rick Barnhart, Bellarmine Preparatory School, Tacoma, Washington, USA
Mr. Eric A. Betanoff, USN, Alexandria, Virginia, USA
Prof. John S. Bird, Simon Fraser University, Burnaby, B.C., Canada
Dr. George H. Born, University of Colorado, Boulder, Colorado, USA
Dr. Hsin-Hung Chen, National Sun Yat-sen University, Kaohsiung, Taiwan
Prof. Yong Qi Chen, The Hong Kong Polytechnic University, Hong Kong, China
Dr. Yung-Fang Chiu, Taichung Taiwan
Dr. Hong-Yeon Cho, KORDI, Seoul, Korea
Mr. Howard Deese, DBEDT/SID Ocean Resources Branch, Honolulu, Hawai’i, USA
Mrs. Ma. Belinda E. de la Paz, Haribon Foundation, Quezon, Philippines
Dr. Mary J. Donohue, University of Hawaii, Honolulu, Hawaii, USA
Dr. William J. Emery, University of Colorado, Boulder, Colorado, USA
Dr. Ichiro Fukumori, California Institute of Technology, Pasadena, California, USA
Mr. John H. Gibson, Naval Postgraduate School, Monterey, California, USA
Dr. Wolf D. Grossman, GKSS Research Center, Geesthacht, Germany
Ms. Amy E. Hall, JIMAR, Honolulu, Hawai’i, USA
Dr. Hiroshi Hayashi, The Japanese Institute of Technology, Tokyo, Japan
Prof. Richard G. Hildreth, University of Oregon School of Law, Eugene, Oregon, USA
Dr. Ho-Shong Hou, National Policy, Office of the President, Taipei, Taiwan
Prof. Tai-Wen Hsu, National Cheng-Kung University, Tainan, Taiwan
Dr. Mark E. Huntley, University of Hawai’i, Kailua-Kona, Hawai’i, USA
Dr. Tomoki Ikoma, Nihon University, Chiba, Japan
Dr. J. Edward Johnson, Naval Oceanographic Office, Stennis Space Center, Mississippi, USA
Mr. David W. Jourdan, NAUTICOS, LLC, Cape Porpoise, Maine, USA
Dr. Shoji Kase, The Japanese Institute of Technology, Tokyo, Japan
Membership from PACON 2004 (Continued)

Ms. Darcee Killpack, NOAA Pacific Services Center, Honolulu, Hawaii, USA
Prof. Akira Kimura, Tottori University, Tottori, Japan
Dr. Katsutoshi Kimura, Muroran Institute of Technology, Hokkaido, Japan
Dr. Young C. Kim, California State University, Los Angeles, California, USA
Mr. Masao Kishino, The Japanese Inst. of Tech. on Fishing Ports and Grounds and Communities, Tokyo, Japan
Prof. H.D. Knauth, GKSS Research Centre, Geestacht, Germany
Mr. Toshio Komatsu, Electric Power Development Co., Ltd., Ehimeken, Japan
Prof. Yasunori Kozuki, The University of Tokushima, Tokushima, Japan
Mr. Takayuki Kumada, Nihon University, Chiba, Japan
Dr. Robert Leben, Colorado Center for Astrodynamics Research, Boulder, Colorado, USA
Prof. Hsien Hua Lee, National Sun Yat-zen University, Kaohsiung, Taiwan
Prof. Jaw-Fang Lee, National Cheng Kung University, Tainan, Taiwan
Prof. Boris W. Levin, Institute of Marine Geology & Geophysics, Sakhalinsky region, Russia
Prof. Clark C.K. Liu, University of Hawai’i, Honolulu, Hawaii, USA
Ms. Carla Manuel, NOAA Pacific Services Center, Washington, DC, USA
Dr. Xian-Zhong Mao, University of Hawai’i, Honolulu, Hawaii, USA
Prof. James B. Marsh, University of Hawai’i, Honolulu, Hawaii, USA
Prof. Koichi Masuda, Nihon University, Chiba, Japan
Dr. Stephen M. Masutani, University of Hawai’i, Honolulu, Hawaii, USA
Dr. Nikolai A. Maximenko, University of Hawai’i, Honolulu, Hawaii, USA
Dr. Phil McGillivray, U.S. Coast Guard, Alameda, California, USA
Mr. James P. McGuire, IPO/NASA, Silver Spring, Maryland, USA
Dr. Masashi Mochizuki, University of Tokyo, Tokyo, Japan
Dr. Gianna Moscardo, James Cook University, Townsville, Queensland, Australia
Prof. Hitoshi Murakami, The University of Tokushima, Tokushima, Japan
Dr. David T. Neil, University of Queensland, St. Lucia, Queensland, Australia
Mr. Ronald K. Nilsen, Bellarmine Preparatory School, Tacoma, Washington, USA
Dr. Byung-Cheol Oh, KORDI, Kyunggido, Korea
Dr. Kyoichi Okamoto, Nihon University, Chiba, Japan
Mr. Ed D’Ig Pangelinan, Washington, D.C., USA
Dr. Paul Pernambuco-Wise, Oceanit, Honolulu, Hawaii, USA

Dr. Emil T. Petruncio, National Geospatial Intelligence Agency, Arnold, Maryland, USA
Dr. Stephen R. Piotrowicz, U.S. Dept of Commerce, Silver Spring, Maryland, USA
Mr. Brian R. Quarles, Northrop Grumman, Fairfax, Virginia, USA
Ms. Lucile M. Roberts, HIMB, Kaneohe, Hawai’i, USA
Dr. Yuji Sakuno, Hiroshima University, Higashi-Hiroshima, Japan
Prof. Nobuhira Sawano, Seiryo Women’s Junior College, Ishikawa Pref., Japan
Dr. Friedhelm Schroeder, GKSS Research Centre, Geestacht, Germany
Dr. Bob E. Schutz, University of Texas, Austin, Texas, USA
Mr. Kenneth M. Sharp, Naval Oceanographic Office, Stennis Space Center, Mississippi, USA
Prof. Yoshihiro Shiraiwa, University of Tsukuba, Tsukuba, Japan
Dr. Richard J. Small, University of Hawai’i, Honolulu, Hawaii, USA
Dr. Richard W. Spinrad, NOAA, Silver Spring, Maryland
Ms. Jennifer R. Stephenson, NOAA Fisheries, Honolulu, Hawaii, USA
Mr. Masayuki Suga, Nihon Bunri University, Oita, Japan
Prof. Mitsuo Takezawa, Nihon University, Tokyo, Japan
Hon. Pedro A. Tenorio, Commonwealth of the Northern Mariana Islands, Washington, DC, USA
Mr. Jim O. Thomas, J.O. Thomas & Associates, Ltd., Vancouver, B.C., Canada
Mr. William Thomas, NOAA Pacific Services Center, Honolulu, Hawaii, USA
Prof. Chang-Ching J. Tsai, National Kaohsiung University of Applied Sciences, Kaohsiung, Taiwan
Dr. Davan Vithanage, Oceanit Laboratories, Inc., Honolulu, Hawaii, USA
Dr. Chau-Chang Wang, National Sun Yat-sen University, Kaohsiung, Taiwan
Prof. Ronald M. Weiner, University of Maryland, College Park, Maryland, USA
Dr. Zengo Yoshida, University of Tokyo, Tokyo, Japan
Prof. Ho-Shing Yu, National Taiwan University, Keelung, Taiwan

Corporate Membership:
Taiwan Society of Ocean Engineering, Taiwan
The following members were recommended:
Bao-Shi Shiau
Liang-Hsiung Huang
Ching-Piao Tsai
Sheng-Wen Twu
Hsien-Kuo Chang
### PACON CHAPTER CONTACTS

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<th>AUSTRALIA</th>
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<td>Prof. John Black</td>
<td>Ms. Elizabeth Corbin (Chair)</td>
<td>Professor U Thein Tun</td>
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<tr>
<td>(Chair)</td>
<td>Fax: (808) 587-2777</td>
<td>(Chair)</td>
</tr>
<tr>
<td>Fax: +61-2-9385-6139</td>
<td>Email: <a href="mailto:ecorbin@dbedt.hawaii.gov">ecorbin@dbedt.hawaii.gov</a></td>
<td>Fax: +95-36-21270</td>
</tr>
<tr>
<td>Email: <a href="mailto:j.black@unsw.edu.au">j.black@unsw.edu.au</a></td>
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<td>Dr. Young C. Kim</td>
<td>Dr. S.Z. Qasim (Chair)</td>
<td>VADM Eduardo Santos</td>
</tr>
<tr>
<td>(Chair)</td>
<td>Fax: +91-11-696-8171</td>
<td>(Chair)</td>
</tr>
<tr>
<td>Fax: (323) 343-6316</td>
<td>Email: <a href="mailto:sios@del3.vsnl.net.in">sios@del3.vsnl.net.in</a></td>
<td>Fax: +632-721-2314</td>
</tr>
<tr>
<td>Email: <a href="mailto:ykim@calstatela.edu">ykim@calstatela.edu</a></td>
<td></td>
<td>Email: <a href="mailto:emars@consultant.com">emars@consultant.com</a></td>
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<td>Mr. Wenhe Yang</td>
<td>Dr. Yoshifusa Yamada (Chair)</td>
<td>Dr. Sergei Shapovalov</td>
</tr>
<tr>
<td>(Chair)</td>
<td>Fax: +81-33-770-1248</td>
<td>(Chair)</td>
</tr>
<tr>
<td>Fax: TBA</td>
<td>Email: <a href="mailto:yd@japatech.co.jp">yd@japatech.co.jp</a></td>
<td>Fax: +7-095-124-5983</td>
</tr>
<tr>
<td>Email: TBA</td>
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<td>Prof. Ju-Chin Chen (Chair)</td>
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<tr>
<td>(Chair)</td>
<td>Fax: +82-31-408-5934</td>
<td>Fax: +886-2-2362-6092</td>
</tr>
<tr>
<td>Fax: (301) 320-8638</td>
<td>Email: <a href="mailto:hthuh@sios.re.kr">hthuh@sios.re.kr</a></td>
<td>Email: <a href="mailto:jechen@oc.ntu.edu.tw">jechen@oc.ntu.edu.tw</a></td>
</tr>
<tr>
<td>Email: <a href="mailto:jjcarey@aol.com">jjcarey@aol.com</a></td>
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<tr>
<td>Fax: +49-4152-87-1888</td>
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<tr>
<td>Email: <a href="mailto:kauth@gkss.de">kauth@gkss.de</a></td>
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### PACON INTERNATIONAL LIFE MEMBERS

- Kazuaki Akai
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PACON International
P.O. Box 11568
Honolulu, HI 96828-0568

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