

The IEEE Oceanic Engineering Society: From National to Global, 1968 – 2009

Stanley G. Chamberlain, IEEE/OES Past President '83-85
Engineering Fellow, Retired
Raytheon Company, Tewksbury, MA, 01876 USA



Abstract-- The IEEE Oceanic Engineering Society (OES) has completed forty-one years of active engagement: the initial eight years in the form of the Oceanography Coordinating Committee (OCC), followed by seven years as the Council of Oceanic Engineering (COE), then the past twenty-six years in the form of an IEEE society. This paper briefly reviews the growth of the society from national to global in terms of the organizational structure, the flagship OCEANS Conference venues, chapters, technology committees, symposia and workshops, student activities and recognition of outstanding contributors.

Keywords-- history, oceanic engineering, IEEE society

I. INTRODUCTION

It was in April of 1968, 41 years ago that the roots of the IEEE Oceanic Engineering Society were firmly planted. The intent was to establish a forum in the area of oceanic engineering that would be of service to society, the engineering profession, the oceanic engineering community and the professional interests of IEEE members working in oceanic engineering. Where we started and how far we have come over those 41 years is briefly summarized here. Some of the more significant aspects of the society, including its Organizational Evolution, the flagship OCEANS conferences, Chapters & Technology Committees, our emphases on students and our recognition of outstanding contributors, are touched on here. In all of these, like many IEEE societies, the Oceanic Engineering Society has grown from an initial United States Society into a global entity. A more complete history of the Society is contained in two papers that were published in the Society's Journal of Oceanic Engineering; the first, published in the April, 1985 issue, covers the first 20 years of the Society [1], and the second, appearing in the January 2008 issue, discusses the Society's second 20 year period [2].

II. ORGANIZATIONAL EVOLUTION

The initial objectives were to represent the IEEE in the multiple-society sponsored Offshore Technology Conference (OTC), held annually in Houston, Texas, and to sponsor a separate conference devoted to the broad aspects of applying electro-technology in the oceans – namely the OCEANS conference. To do this, a “committee” was formed within the IEEE, whose members were various IEEE societies. It was called the Oceanography Coordinating Committee. Initial

members of the Committee were the Geosciences & Remote Sensing Society, the Aerospace & Electronic Systems Society and the Communications Society. To communicate the activities of the Committee, a Newsletter was initiated. In the IEEE organizational structure, a “Committee” could sponsor conferences and publish a Newsletter. However, an IEEE Committee is not allowed to publish a Journal containing archival papers. To do this, the Committee must transition into a so-called “Council”. And thus the Council of Oceanic Engineering (COE) was formed in 1976 and the Journal of Oceanic Engineering began to be published. By this time the number of society members had grown to 17, and eventually to 22¹. The OES is what has sometimes been called an “applications” society, where many of the specialty technologies of the various IEEE societies get applied in the oceanic environment. A couple of years after the establishment of the Council, Technology Committees began to be formed to sponsor specialty workshops and encourage presentation of papers in their specialty areas at the OCEANS conferences.

As the OCEANS conferences moved to different locations, there was a need for people in the various locations to help organize the conferences. However, the members of IEEE Councils are IEEE societies, not individual persons. To have individual members, the Council would have to transition into a “society”. This took place in 1983, and shortly after this, Chapters were formed in locations where there was a sufficient number of society members, initially in San Diego, Seattle and Halifax, Nova Scotia.

IV. OES PRESIDENTS

We have had eight presidents of the OES over the first 25 years as a Society, as shown in Fig. 1. I was privileged to serve as the first president. Fig. 2 shows our ninth and current president, Jerry Carroll, who began serving in 2009. It is

¹Acoustics, Speech and Signal Processing Society, Aerospace and Electronic Systems Society, Antennas and Propagation Society, Circuits and Systems Society, Communications Society, Components, Hybrids & Manufacturing Technology Society, Computer Society, Control Systems Society, Electrical Insulation Society, Electron Devices Society, Engineering in Medicine and Biology Society, Engineering Management Society, Geoscience and Remote Sensing Society, Industrial Electronics Society, Information Theory Group, Instrumentation and Measurement Society, Microwave Theory and Techniques Society, Nuclear and Plasma Sciences Society, Power Engineering Society, Reliability Society, Sonics and Ultrasonics Group, and Vehicular Technology Society.

interesting that of the 9 presidents we have had to date, there are 7 who are still active in the Society.



Figure 1. OES Presidents from 1983-2008



Figure 2. Jerry Carroll, Ninth OES President - 2009

VI. OCEANS CONFERENCE VENUES: 1970 – 1975

In the initial period as the Oceanography Coordinating Committee, we held 6 OCEANS Conferences. As shown in Fig. 3, these were all in North America, with five in the United States and one in Canada. They were held at the four corners of the United States, where there are concentrations of universities and companies specializing in marine technology and oceanic engineering.



Figure 3. OCEANS Conference Venues: 1970-75

VIII. OCEANS CONFERENCE VENUES: 1976 – 1981

From 1976 to 1981, the OCEANS conferences alternated between the West and East Coasts of the United States, with 2 conferences in Washington DC, as shown in Fig. 4.



Figure 4. OCEANS Conference Venues: 1976-81

X. OCEANS CONFERENCE VENUES: 1982 – 1990

From 1982 to 1990, the Conferences continued to alternate between the West and East Coasts of the United States, but with Washington DC becoming prominent (See Fig. 5). This was because of the influence of the Marine Technology Society, who was by now our co-sponsors of the OCEANS Conferences, and whose members had a predominance of United States government customers concentrated in Washington DC. This trend was about to change, as we will see next.



Figure 5. OCEANS Conference Venues: 1982-90

XI. OCEANS CONFERENCE VENUES: 1991 – 2003

During the next 13 years, the conference never returned to Washington DC and it was held in many new locations, including 2 in Europe and one in Hawaii (See Fig. 6). The West-East alternation continued, with even-numbered years on the East Coast and odd-numbered years on the West Coast, with Halifax, Nova Scotia, Canada apparently being considered on the West coast.



Figure 6. OCEANS Conference Venues: 1991–2003

XII. OCEANS CONFERENCE VENUES: 2004 – 2010

Starting in 2004 we really became global in nature, with the 2004 conference in Kobe, Japan, and later conferences being held twice a year, with one in North America every year and those in even-numbered years in Asia-Pacific and those in odd-numbered years in Europe (See Fig. 7). You'll notice future conferences scheduled for Seattle, Washington and Sydney, Australia in 2010. Not shown, conferences in 2011 will be in Waikoloa, Hawaii and Santander, Spain.



Figure 7. OCEANS Conference Venues: 2004-10

XIII. RECENT OCEANS CONFERENCE LOGOS

We've had an interesting set of Logos and Themes for the various OCEANS conferences – which reflect some of the interesting places we've held the conference. Here in Fig. 8 are some of the ones from recent conferences. The Kelpie logo was for OCEANS'07-Aberdeen, Scotland and the Sea-Eagle for OCEANS'07-Vancouver, Canada.



Figure 8. Logos from Recent OCEANS Conferences

XIV. IMPORTANT GOVERNMENT PARTICIPANTS

Fig. 9 shows a picture from the banquet at OCEANS'76, held in Washington DC, during the 1976 Bicentennial year of the United States. It shows six US senators being interviewed by Bob Frosch, then Assistant Secretary of the Navy. The group included 4 Democrats and 2 Republicans, each with interest in the oceans. The event was televised; you might be able to make out the TV camera on the right side of the Figure.



Figure 9. Banquet at OCEANS'76

XV. RIBBON CUTTING CEREMONY

Some of the conferences have a more formal aspect to them. In Fig. 10 we have the Ribbon Cutting Ceremony at OCEANS'08-Quebec in Canada. Besides society and conference leaders, the group included leaders of the major oceanographic agencies in Canada and the US.



Figure 10. Ribbon Cutting Ceremony at OCEANS'08-Quebec, Canada

XVI. INTERESTING SOCIAL EVENTS

We always have interesting social events at the conferences. In Fig. 11 we see a very lovely night scene of Kobe Harbor (Japan), taken on the evening that we took the Harbor Cruise at the conference in 2004 held in conjunction with the Japanese bi-annual Techno-Ocean Conference.



Figure 11. Kobe, Japan Harbor

Another of our interesting social events is shown in Fig. 12, which shows some members of the OES Administrative Committee, taken at OCEANS'07-Aberdeen, Scotland. You'll notice that the women are wearing slacks and the men are wearing skirts – or rather kilts.



Figure 12. OES AdCom Members at OCEANS'07-Aberdeen), Scotland

XVII. OCEANIC ENGINEERING SOCIETY CHAPTERS: 1980S

As the locations of the OCEANS conferences moved around the globe, there were chapters of the OES formed in various sites. In the 1980's, six chapters were formed in the USA and two in nearby Canada, as identified in Fig. 13.



Figure 13. OES Chapters in the 1980s

XVIII. OCEANIC ENGINEERING SOCIETY CHAPTERS: 1990S

In the 1990's, two more chapters were formed in Canada, but four were formed outside continental North America, in Japan, France, Norway and Hawaii (see Fig. 14).



Figure 14. OES Chapters in the 1990s

XIX. OCEANIC ENGINEERING SOCIETY CHAPTERS: 2000s

In the 2000's, there were two more added in Asia-Pacific, two in Europe, one in Canada and three in the United States. Not shown in Fig. 15 is a recently formed chapter in India. So that today, we have a total of 18 Chapters of OES around the globe.



Figure 15. OES Chapters in the 2000s

XX. OES TECHNOLOGY COMMITTEES: 1980s

A society of 1500 to 2000 members will naturally have a variety of specialized technology areas within it. To respond to this, Technology Committees were formed to encourage interactions between those with similar technology interests. In the 1980's we had an initial set of eight Technology Committees (see Fig. 16). These included such areas as Autonomous Underwater Vehicles, Oceanographic Instrumentation, Underwater Acoustics, and Air/Space Remote Ocean Sensing.



Figure 16. OES Technology Committees in the 1980s

XXI. OES TECHNOLOGY COMMITTEES – 2009

Today, we have a total of seventeen Technology Committees. As shown in Fig. 17, new Committees include Environmental Acoustics, Global Earth Observing System of Systems (GEOSS), Ocean Energy, Underwater Communications, Navigation & Positioning, Ocean Policy & Education, Submarine Cable Technologies, and Maritime Security & Critical Infrastructure. These Committees assist in soliciting and reviewing papers and chairing sessions at OCEANS conferences, and for some of them, in sponsoring specialty workshops and symposia.



Figure 17. OES Technology Committees in 2009

XXII. OTHER CONFERENCES & WORKSHOPS

Besides the Flagship OCEANS Conference, the OES sponsors a broad set of other conferences and workshops, as identified in Tble. 1. The Offshore Technology Conference is held annually, since 1969, the early days of the Oceanography Coordinating Committee. The OES is one of 11 societies that co-sponsor this conference. The Underwater Technology Conferences (in AsiaPacific) & Baltic Conferences (in Europe) are held every two years, as is the Autonomous Underwater Vehicles Symposia (which had its first non-North American workshop in France in 2007). The Chile-US Workshop was our first entry into South America. There is another Workshop scheduled for Argentina for later this year. The latter 4 workshops are sponsored by some of the Technology Committees of the society. There is a host of additional conferences, symposia and workshops, including a conference in India, in which the OES is a technical co-sponsor, without any financial responsibilities.

TABLE I. OTHER OES CONFERENCES AND WORKSHOPS

Other Conferences & Workshops
• Offshore Technology Conference <ul style="list-style-type: none"> o Annually since '69
• Underwater Technology Conference (Japan/Asia Pacific) <ul style="list-style-type: none"> o '98, '00, '02, '04, '07, '09
• US/EU Baltic Conference (Baltic Countries) <ul style="list-style-type: none"> o '04, '06, '08
• Chile-US Workshop on Ocean Observation Systems <ul style="list-style-type: none"> o '08
• Current Measurements Tech Conference <ul style="list-style-type: none"> o '78, '82, '86, '90, '95, '99, '03, '05, '08
• Autonomous Underwater Vehicles Symposium <ul style="list-style-type: none"> o '90, '92, '94, '96, '98, '00, '02, '04, '06, '08
• Submarine Cable Workshop <ul style="list-style-type: none"> o '03, '04, '06, '07, '09
• Homeland Security Technology Workshop <ul style="list-style-type: none"> o '03, '04, '05

XXIII. STUDENT POSTER PRESENTATIONS

To encourage students to enter the profession as Oceanic Engineers, the OES sponsors or co-sponsors several forums involving students. Students are provided financial support to attend and present poster papers of their oceanic engineering work at each OCEANS conference. Since 1989, 838 abstracts have been submitted and 428 posters have been presented. Students have come from 28 different countries. Fig. 18 shows the Student Poster students with OES Student Poster Coordinator Norm Miller at OCEANS'09-Bremen, Germany.



Figure 18. Student Poster Presenters at OCEANS'09-Bremen, Germany

XXIV. HUMAN POWERED SUBMARINE COMPETITIONS

Another student activity sponsored (actually co-sponsored) by the OES is the Human Powered Submarine event. As shown in Fig. 19, in 2007 there were 22 teams with an interesting variety of submarine designs. Most are single person powered, but some use two persons. Most vehicles have propellers, but some have other means, such as the one with wings that flap up and down. These events have been held every other year since 1989, with a total of 205 teams participating. The initial events were held on the coast of Florida, but more recently they have moved indoors to the US Navy Test Tank in Maryland, just outside Washington DC.



Figure 19. Human Powered Submarines at 2007 Competition

XXV. DISTINGUISHED ACHIEVEMENT RECOGNITIONS

Like most IEEE societies, the OES recognizes those who have made outstanding contributions. The OES has sponsored 26 IEEE members elected to the rank of IEEE Fellow. Many more OES members have been sponsored by other IEEE societies to Fellow status. We have also recognized additional

significant contributions with our annual Distinguished Technical Achievement and Distinguished Service Awards. In Fig. 20, Dr John Craven, a giant in oceanic engineering, receives the Distinguished Technical Achievement Award from then OES President Tom Wiener at the OCEANS Conference in 2004.



Figure 20. John Craven Receiving "OES Distinguished Technical Achievement Award in 2004

XXVI. BENEFITS OF OES MEMBERSHIP

In closing, it wouldn't be right unless I gave a bit of a commercial, in terms of the benefits of membership in the IEEE Oceanic Engineering Society. Regular receipt of the archival Journal of Oceanic Engineering and our Newsletter tops the list, along with the opportunity to meet and network with our (local, national and global) peers in the oceanic engineering and marine technology community. We obtain discounted registration rates at OCEANS and other society conferences, symposia and workshops. There is also opportunity to serve the engineering profession and grow professionally by helping to organize conferences and workshops and other activities of the society. Also important is the unlimited on-line access by OES members to papers from past OCEANS conference proceedings and the Journal of Oceanic Engineering. To become a member of the OES, one must also be an IEEE member. This brings with it all the benefits of IEEE membership, including access to other IEEE publications and conferences, use of IEEE Career development tools (including on-line tutorials and mentoring) and reduced cost insurance, financial and home office services.

XXVII. IEEE OCEANIC ENGINEERING SOCIETY- FROM NATIONAL TO GLOBAL: 1968 – 2009

The IEEE Oceanic Engineering Society – From National to Global. We've come a long way over the past 41 years. We have a long way yet to go. It will be interesting to see where the challenges of the future lead us.

REFERENCES

- [1] I. Coggeshall, "Oceanic Engineering: The Making of an IEEE Society", IEEE J. Ocean. Eng., vol. OE-10, No. 2, pp. 63-83, Apr. 1985.
- [2] S. G. Chamberlain, J. Czika, N. D. Miller & G. N. Williams, "The IEEE Oceanic Engineering Society at Forty: The Challenges of an Evolving Society", IEEE J. Ocean. Eng., vol. OE-33, No. 1, pp 1-54, January 2008]