

ANNUAL REPORT OF THE SOCIETY FOR 2019

DIRECTOR'S REPORT, SOCIETY AWARDS AND AUDITED FINANCIAL REPORT (2018)

Director's Report

SEPM Annual meeting and GSA Meeting Activities

SEPM held its Annual Meeting in San Antonio, TX, USA, jointly with AAPG. Outgoing **President Gary Nichols** turned the gavel over to the new President, **Lynn Soreghan**. Under the leadership of SEPM ACE Vice Chairs Andrea Fildani and Jake Covault their committee, SEPM's sole and jointly sponsored sessions accounted for about 40% of the technical program. The SEPM Research Symposium for 2019 was "*A look into the future of energy and sustainability using the sedimentary record*". At the business luncheon, **Lesli Wood** gave attendees the latest updates on details of her presentation "*Seismic Geomorphology: From the Earth's Ocean Depths to the Distal Planets, a revolution in reconstructing landscape form and processes.*" Due to the changes in the Bylaws and terms of office approved by the membership, at the current President's Reception, Lynn and the membership honored the society's 2019 medalists and the outstanding journal papers, and student awardees. This year SEPM again awarded three cash prizes to the 2019 top SEPM Student Posters. SEPM again offered a balanced selection of courses and trips in 2019.

SEPM Annual Meeting Committee

- Andrea Fildani, SEPM Vice Chair and Research Symposium Theme Chair
- Xavier Janson, SEPM Field Trip Chair
- Zoltan Sylvester, SEPM Short Course Chair and Sponsorship Chair
- Glen Sharman, SEPM Awards Chair
- Kiara Gomez, SEPM Research Symposium lead Theme Chair
- Howard Harper, SEPM Sponsorship Chair

Additionally, SEPM sponsored multiple technical sessions at the Geological Society of America's Annual Meeting in Phoenix, AZ, USA under the direction of **Howard Harper** as SEPM's Joint Technical Program Chair. SEPM also co-sponsored the SGD/ Limnology Reception on Tuesday evening. Four cash prizes (three from SEPM and one from SGD) were awarded to the outstanding student poster presentations in the SGD/SEPM sponsored student session.

Short Courses

SEPM Annual Meeting (at AAPG – ACE, San Antonio, TX, USA)

- Deep-Water Depositional Environments: Processes and Products. Zoltan Sylvester, David Mohrig, Wonsuck Kim (Univ. of TX, Austin), Julian Clark (Equinor)
- Advances in Representing Geologic Heterogeneity in Reservoir Models. Jake Covault, Michael Pyrcz (UT-Austin), and Richard Sech (Anadarko)
- Sequence Stratigraphy for Graduate Students. Morgan Sullivan (Chevron) and Art Donovan (Texas A&M)
- Essentials for Understanding Unconventional Mudrock Plays. Robert Loucks, Stephen Ruppel (Univ. of TX, Austin)

- Introduction to Data Science and Machine Learning in the Geosciences. Didi Ooi (Anadarko), and Michael Pyrcz (Univ. of TX at Austin)

International Meeting (AAPG ICE- Buenos Aires, Argentina)

- SEPM Course: Advanced Sequence Stratigraphy – Vitor Abreu (ACT Consulting) and Howard Harper (SEPM)

Field Trips

SEPM Annual Meeting (at AAPG – ACE, San Antonio, TX, USA)

- Slope and Deep-Water Mixed Carbonate-Siliciclastic Architectural Elements of the Delaware Basin: A Core and Field Workshop. Xavier Janson (Bureau of Economic Geology, The Univ. of TX at Austin), Greg Hurd (Chevron), and Zane Jobe (Colorado School of Mines CoRE)
- Fluvial and Coastal Clastic Sedimentology and Ichnology in Modern Environments and Core. Anton Wroblewski (ConocoPhillips and Univ. of Utah), Stephen Hasiotis (Univ. of Kansas), Peter Flaig (Bureau of Economic Geology, Univ. of TX at Austin)
- Oceanic Anoxic Events 1A&B in Central Texas. Charles Kerans and Esben Pedersen (Univ. of TX), Rob Forkner (Equinor), Toti Larson and Xun Sun (Bureau of Economic Geology, Univ. of TX)
- Effects of the K-Pg Impact in Outcrops and Cores-Brazil River and IODP Core Repository.
- Sean Gulick, Chris Lowery, and Daniel Stockli (Univ. of TX at Austin), and Richard Denne
- Geologic Controls on Production from the Upper Cretaceous Eagle Ford and Austin Chalk Formations, South Texas. Bruce Hart (Equinor), Alexis Godet (Univ. of TX at San Antonio), and Mike Pope (Texas A&M)

Journals

Both of our technical journals continued having great years. The 5-year Impact Factors for both journals continue to be highly ranked. The *Journal of Sedimentary Research* continues publishing top-quality papers under the guidance of the co-editors, **Gary Hampson** (Imperial College, London, UK) and **Peter Burgess** (University of Royal Holloway, London, UK). *PALAIOS* was under the editorship of **Patrick Orr** (University College, Dublin, Ireland) and **Martin Zuschin** (University of Vienna, Austria). *JSR*'s annual content is about 1500 pages and *PALAIOS* is at about 900 pages. Both journals are using continuous publishing where new articles are published online as soon as they are ready, not waiting until the entire monthly issue is ready. With online science journal access being the preferred mode by many scientists and students, SEPM and its journals continued to play an important role, as a founder of the geoscience online journal aggregate, GeoScienceWorld (GSW), which continues to thrive. *JSR* is part of the GSW and AAPG-Datapages, while *PALAIOS* is part of GSW, BioOne and JSTOR online aggregates.

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Additionally, SEPM's content of the Journal of Paleontology (1927-1985) is also online at JSTOR.

Both of the journals as well as an SEPM Book Archive are within SEPM's independent online publications site www.sepmonline.org, which also hosts the Gulf Coast Section SEPM (GCSSEPM) Conference Proceedings. In 2019 SEPM's online content, including GCSSEPM content, is hosted by GSW with technology partner, Silverchair. Selected SEPM journal and book content is also part of the Geofacets dataset, which SEPM members can access as a membership option, which will be at no additional cost in 2019.

Also starting with 2016 and continuing, both SEPM journals are now available in print at the SEPM Bookstore (www.sedimentary-geology-store.com). Individuals or libraries can purchase selected issues (printed as double issues) or buy each new one as it comes out to maintain a complete set of the printed version.

The Sedimentary Record, the full color member magazine, is now in its 17th year, under the science editorship of **Lauren Bergenheier** (University of Utah, USA). The SedRec has continued publishing a current, interesting science article as well as giving SEPM members up to date information concerning the world of sedimentary geology. The Sedimentary Geology Division of GSA continues to publish its newsletter section twice a year as part of this magazine in the March and September issues to better communicate to the wider sedimentary geology community. The online version often contains additional content.

Special Publications

Under the editorship of **John-Paul Zonneveld**, the special publications of SEPM continue to produce top of the line products. In 2019, four new books were published as complete books and the pipeline of future books continues to grow with new proposals and several additional manuscripts being prepared. SEPM's online submission and review process, similar to the journals, continues to function well. This helps to reduce the time needed to take a book from idea to publication. Additionally, starting in 2020, SEPM will be teaming with IAS to help publish their newer books and they will be available on the SEPM Bookstore.

New Books in 2019

- *SEPM Special Publication 112. Carbonate Pore Systems: New Developments and Case Studies*. Donald F. McNeill, Paul (Mitch) Harris, Eugene C. Rankey, and Jean Hsieh
- *SEPM Special Publication 111. Geologic Problem Solving with Microfossils IV*. Richard A. Denne and Alicia Kahn
- *SEPM Special Publication 110. From the Mountains to the Abyss: The California Borderland as an Archive of Southern California Geologic Evolution*. Kathleen M. Marsaglia, Jon R. Schwalbach, and Richard J. Behl
- *SEPM Special Publication 108. Latitudinal Controls on Stratigraphic Models and Sedimentary Concepts*. Carmen M. Fraticelli, Paul J. Markwick, Allard W. Martinius, and John R. Suter

Online First. SEPM's Online First, where new Special Publications are published chapter by chapter online at <http://www.sepm.org/OnlineFirst.aspx> as each chapter or article is finalized, currently for the latest books in the publication process. After the last chapter is finalized the books are compiled and sold on the SEPM Bookstore, in print or digital format as well as being uploaded to our online sites. The current books with chapters loaded to Online First include:

- *Late Paleozoic and Early Mesozoic Tectonostratigraphy and Biostratigraphy of Western Pangea*

SEPM Online Books. SEPM Online Book Archive I (1929-2009 books) was first launched late in 2010 and it, along with Archive II (2010-2014 books), continues to be used by both library and member subscribers. Books in the Special Publications, Concepts, Short Course Notes and Core Workshop Notes Series are uploaded to the site as they are published and can be purchased individually or via an Archive I or Archive II collections. SEPM's new books are now available in print, hard digital format (USB) or via online access. SEPM will be creating the next in the Archive series – III (2015-2019) and that will be aggregated soon in 2020.

Additionally, SEPM book publications continue to be included in the GSW e-books collection, which first opened in 2015. SEPM book publications are also part of the Geofacets dataset which SEPM members can access as a membership option.

Research Conferences

In 2019 SEPM held no research conferences

Collaborations (AAPG, AGI, GSL, GSA, NACSN, IUGS, AGU, IAS and CSPG)

In addition to SEPM's long standing relationship with AAPG and its memberships in AGI and NACSN, SEPM has signed Memorandums of Understandings (MOUs) with The Geological Society of London, American Geophysical Union and Geological Society of America for cooperative activities. These agreements have resulted in numerous jointly sponsored technical sessions, conferences, short courses and field trips.

During 2019, SEPM along with representatives of IAS and SGD (of GSA) have put together the International Sedimentary geoscience Congress to be held in Flagstaff, AZ, USA in April, 2020.

SEPM continues to be a society that works with other groups to fulfill its mission for sedimentary geology.

SEPM Governance

SEPM continues to implement its new three year Council terms and the rotation starts to become routine.

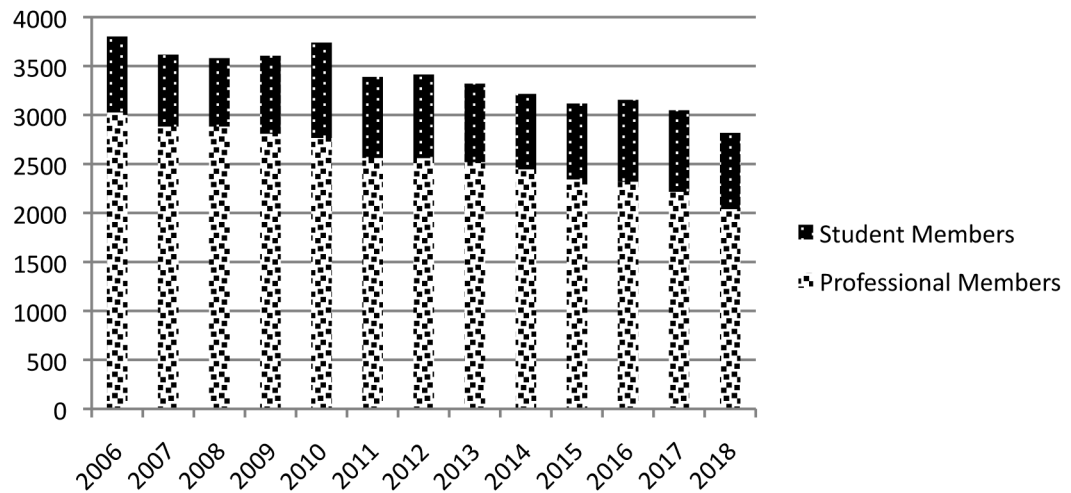
Howard E. Harper, Executive Director

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Table 1. – Membership Statistics

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
SEPM MEMBERSHIP													
Professional Members	3027	2883	2883	2809	2767	2562	2560	2520	2445	2342	2320	2216	2040
Student Members	775	733	697	795	972	827	854	800	770	775	834	832	777
New Members	302	293	299	407	264	383	344	367	274	360	394	394	259
Dropped Members	495	380	408	448	619	559	658	437	554	426	426	464	511
<i>Journal of Sedimentary Research</i>													
Individual Library Subscribers	882	817	768	715	669	621	587	522	458	428	455	383	324
Aggregate Library Subscribers (GSW & DataPages)	349	422	486	541	583	647	747	836	1368	1145	1031	1041	1078
Member Subscribers	2762	2584	2633	2705	2386	2168	1901	1672	1702	1254	1311	1179	969
<i>PALAIOS</i>													
Individual Library Subscribers	312	278	247	221	199	181	167	134	133	102	114	98	68
Aggregate Library Subscribers (GSW & BioOne)	1217	1269	1420	1647	1774	1878	1978	2129	2339	2169	2060	2039	2039
Member Subscribers	1353	1243	1384	1498	1339	1281	1013	1060	931	724	698	713	557
Online Book Archive 1													
Individual Library Subscribers	NA	NA	NA	NA	NA	13	16	13	14	34	13	21	16
Member Subscribers	NA	NA	NA	NA	NA	650	880	1030	999	692	726	720	570



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SEPM Governance, 2019 Council and Staff

SEPM 2019 Council

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Emmanuelle Ducassou accepts the James Lee Wilson Award
from President Lynn Soreghan

James Lee Wilson Award For Excellence in Sedimentary Geology Research by a Young Scientist Emmanuelle Ducassou

Emmanuelle Ducassou did her undergraduate education at the University of Bordeaux, where she began her career as a general geologist. After receiving her B.S. Emmanuelle caught the opportunity to spend a semester in the Southampton Oceanographic Center (today's National Oceanographic Center) where she specialized in sedimentary geology. Her MRes dissertation on Iceland was based on sedimentology and tephra recognition (2003). She developed an expertise on work on sediment core and particle recognition. She was number 1 of her class and gained a government scholarship to undertake PhD research on the Nile Deep-sea Fan, in collaboration with the University of Nice (J. Mascle and S. Migeon) which included three oceanographic cruises. She made three well-cited papers that point out on the three major results of her PhD (2006): (1) The application of ecostratigraphy to siliciclastic turbidite system and the recent evolution of the Nile deep-sea fan; (2) Recognition of the combine impact of sea-level and climate (wet/dry) on the functioning of the deep-sea fan; (3) the recognition in sediments of deposits resulting from the transformation of hypopycnal into hyperpycnal flows along the stratified water column of the Eastern Mediterranean.

After a post-doc with a financial support from industry she obtained a position of Lecturer and then Associate Professor at the University of Bordeaux (2008). There, she participated to IODP Leg 339 in the Gulf of Cadiz and began a productive scientific work on contourite depositions and mass flow deposits resulting from the re-opening of Gibraltar Strait after the Messinian event. Simultaneously, she was involved in the Carambar project with the aim to study gravitational sedimentary processes along carbonate slopes. She had to apply her knowledge to carbonate slope environment.

Emmanuelle is also involved with a number of outreach activities, making a full-time teaching as a lecturer. Her teaching involves as-well undergraduate and postgraduate level. She makes lectures

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as well in her predilection field (sedimentology) and in any field of geosciences.

It is for her broad research accomplishments that SEPM now honors her with the James Lee Wilson award, as further validation of her outstanding results work in integrative sedimentology.

Biographer: Thierry Mulder

Citation: Emmanuelle Ducassou represents a model for the modern sedimentary geologist who is solving complex questions using multiproxy core analysis and applying stratigraphic methods in sedimentary environments dominated by gravity-flow deposition or contourites. She has the capacity to integrate basic sedimentological analysis such as grain, tephra and biocomponent recognition and most recent high-technology core processing technologies such as XRF, magnetic susceptibility, color analysis, X-ray diffractometry or electron microscope analysis. With a growing research career, integrated with outstanding teaching and participation to international programs, we can expect to hear much more from her in the next decades.

Reply from Emmanuelle Ducassou

I am very happy to receive the James Lee Wilson Award. I am grateful to SEPM for this award, especially when I look at the list of previous outstanding awardees. I thank those who supported my nomination, the SEPM Award Committee, John Reijmer, Javier Hernandez-Molina and Thierry Mulder also for acting as my biographer.

Sedimentary geology intrigued me when I was an undergraduate student, being the meeting point of ocean and atmosphere dynamics and the biosphere. Then I became fascinated by stratigraphy as a recorder of processes and events, especially biostratigraphy and tephrochronology in marine turbidite systems during my Degree and my PhD. Studying how climate and earthquakes affect marine sediment processes are now important research topics for me.

Sedimentary geology allowed me to explore very different domains as I began my work with volcanoclastic sediments. Then my interests evolved to clastic sediments more generally which let me explore a wider range of processes and I currently work on modern carbonates which adds the biology and chemistry to the list of important processes.

Many wonderful official and unofficial mentors, colleagues and students have shaped my life as a sedimentary geologist. I would like to mention first Thierry Mulder, Sébastien Migeon and Jean Mascle who trusted me and let me explore gravity processes, during my PhD and my postdoctoral research. Phil Weaver's works on micropaleontology in turbidite systems inspired me a lot. Lucilla Capotondi showed and taught me the amazing power of ecostratigraphy based on planktonic foraminifers.

I also thank all my colleagues from University of Bordeaux (France) where I have worked for 10 years now, from technicians to researchers and professors. A special thank to Jacques Giraudeau, Michel Cremer and Eliane Gonthier for fruitful discussions about sediment proxies and paleoceanography, and I thank also my colleagues from the Sedimentology team who make easy each day in our Department.

Sedimentary geology also allowed me to be involved in many exciting projects on land and at sea. I have enjoyed working within large scientific teams, especially onboard of research vessels. Ocean drilling participation has enabled me to interact with an international network of interdisciplinary scientists who have greatly influenced the direction of my research. I would like to thank particularly Javier Hernandez-Molina and Dorrik Stow for deepening my understanding of contourite depositional systems, but also Roger Flood for asking endless challenging questions as well all the scientists from IODP Expedition 339 who are now my Mediterranean Outflow friends. I am very excited about future research opportunities.

Last but not least, sedimentary geology led me to teach. Teaching represents at least half of my daily life and I offer special thanks to my former and current students, undergraduate, graduate and posdocs. I love the way they take me far outside my comfort zone. I guess I have learned at least as much from them as they have from me. I am happy and proud to have some of them as colleagues now.

Again thank you so much for this award.



David A. Budd accepts the Honorary Membership Award from President Lynn Soreghan

Honorary Membership For contributions to the science and SEPM David A. Budd

David received his B.A. in 1976 from the College of Wooster and his MS at Duke University, where his interest in carbonates introduced him to the Journal of Sedimentary Petrology and SEPM, which David joined in 1977. Following his PhD at the University of Texas at Austin, in 1983, David joined the R&D group at ARCO but moved to the University of Colorado in 1987. Since then, David has supervised nearly 30 graduate students, taught courses related to sedimentology and stratigraphy, and mentored undergraduate research projects.

David is a carbonate sedimentary geologist whose research focuses on the deposition and diagenesis of carbonate rocks, and the application of carbonate geology to understanding petroleum reservoirs. He has made significant contributions to the understanding of burial diagenesis in the presence of seawater,

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formation of microporosity in limestones, and lateral variability in petrophysical properties of dolomites. His current work focuses on the nature and evolution of pore systems in carbonate-rich unconventional reservoirs, specifically the Niobrara Formation in Colorado. His work has had significant impact in sedimentary geology, particularly in relationship to our understanding of the processes of diagenesis as determined from the petrography and geochemistry of the diagenetic products.

David's extraordinary record of service to SEPM began in 1985 with the SEPM Publications Committee. Other opportunities followed including the New Programs Committee and associate editorship of *JSR*. When elected Sedimentary Councilor in 1993, David first joined SEPM Council. David served as co-editor of *JSR* for four years, President-elect, and President, meaning he sat on Council for 7 years between 2000 and 2014, and served on medal and nominations committees more recently.

Notable accomplishments during his co-editorship of *JSR* were eliminating the publishing backlog, introducing color covers, initiating on-line submissions, and increasing the non-member subscription price to reflect *JSR*'s fair-market value. As President, David worked to expand Council so younger voices and perspectives are heard, mobilize websites, add Twitter as a means of communication, and take the final steps to make *JSR* and *Palaio*s e-journals. These changes reflected SEPM's adaptation to the digital age and a new generation of geoscientists totally fluent and comfortable with an electronic world.

Citation: Honorary membership in SEPM is given to David A. Budd in recognition of his exceptional record of service to SEPM and to the broader sedimentary geology community, his distinguished research accomplishments, and his successful student mentoring.

Reply from David A. Budd

SEPM has been my professional home for 42 years. It is the community through which I have engaged first and foremost, thus receiving this award is very special. I want to thank Mary Kraus for orchestrating the nomination and the anonymous colleagues who wrote in support. The list of Honorary Members contains the names of many giants in our field; it is a privilege to now be on that list.

My citation notes both research and student mentoring amongst my professional accomplishments. I am indebted to the young sedimentologist who trusted me to help guide them to their own professional goals and who willingly pursued my not-always-great ideas for their thesis work. I also acknowledge four mentors - Ron Perkins at Duke, Don Bebout at the BEG, and Bob Folk and Lynton Land at UT-Austin - who taught me to read everything, define interesting questions that others are overlooking, assemble the right kind of data, and go where that data took me even if it meant putting aside preconceived hypotheses.

Of our Society's awards, only HM recognizes contributions that help the society function and promote the sedimentary geosciences. Many individuals contribute to that effort annually. There are also people who say "yes" year-after-year when asked to serve. Among them were early mentors — Ron Perkins, Orrin Pilkey and Don Bebout — who modeled for me the value and

rewards of being a "yes" person when the Society called. And saying "yes" let me meet and interact with a greater variety of sedimentologists and paleontologists than I ever would have in my own research world. SEPM has enriched my professional life and I am glad I said "yes" to so many opportunities to serve.

Lastly, I am deeply indebted to my wife Ann for her support and encouragement over the years. Saying "yes" is so much easier when you know your partner has your back.



Charlie Paull accepts the Francis P. Shepard Medal from President Lynn Soreghan

Francis P. Shepard Medal For Sustained Excellence in Marine Geology Charlie Paull

Charlie Paull is an inspiring colleague, whose influential research spans many diverse areas across marine geology. They range from gas hydrates and methane seeps to the submarine canyons and flows that fascinated Francis Parker Shepard, making this award of the Shepard Medal particularly apt.

Charlie started working on bottom simulating reflectors in the late 1970's while at the US Geological Survey in Woods Hole. The potential significance of the gas hydrate and gaseous gas, which bottom simulating reflectors indicate, was just being recognized at that time. He discovered the first methane supported cold seep biological communities in 1984 during Alvin diving operations. This led to early work on geochemical processes and methane-derived authigenic carbonate formation at seep sites. In the 1990's, he championed the Ocean Drilling Program's first dedicated gas hydrate drilling leg, and served as co-chief scientist for Leg 164.

In 1999, Charlie moved from the University of North Carolina to the Monterey Bay Aquarium Research Institute. At MBARI he has continued to show how new technology for seabed mapping and monitoring can drive profound advances in scientific understanding. This includes his work on the impacts of fluid and gas venting on seafloor morphology, seabed neotectonics, and submerged permafrost. In recent years, Charlie led the most detailed monitoring yet of submarine turbidity currents, which flush submarine canyons. His work is documented by ~200 peer-reviewed publications, and he has profoundly influenced numerous colleagues worldwide.

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Biographer: Peter Talling

Citation: *In recognition of one of the most inspiring marine geologists of this generation, who has made fundamental advances in understanding of gas hydrates, cold seep biological communities, submarine canyons, and sediment transfer to the deep sea; often through the innovative use of new technologies.*

Reply from Charlie Paull

It is a great honor to be the recipient of the 2019 Francis P. Shepard Medal. It is humbling to be listed along with the previous recipients of this medal.

It is also an opportunity to reflect on Fran Shepard, the pioneer of the whole field of marine geology. As it happened, about 45 years ago I had an office at Scripps directly across the hall from Fran's office. At the time he was in his early 90's, but he still came in every day, obviously excited to continue pursuing research and trying to stay current on the exploding marine literature, regardless of his failing vision. Fran clearly remained fascinated by marine geology and was still enjoying a fulfilling career. I share his enthusiasm for the marine geology and feel fortunate to have the luxury to pursue it also.

There are a great number of people who have helped me along in my career. Too many people to systematically list or specifically name.

However, I will mention two by name who had critical impacts and steered me toward geology and then marine geology specifically. As a junior undergraduate at Harvard I by chance took an Introductory geology survey course from the late Steven Jay Gould. It was an inspirational course and it resulted in a late stage change into being a geology major. This change probably saved me from following a more mundane career path. The degree landed me a position at the Office of Marine Geology at the USGS in Woods Hole, where I was assigned to work for Bill Dillon. Bill was a wonderful mentor and remains as a life-long friend and frequent collaborator. It was also a great time to be working at the USGS marine program as President Carter had a sincere interest in what was within the US territorial waters. Ship-time was plentiful and, but people to man science parties or work on the data were in short supply. I remember sketching a figure with Bill one Monday morning that was to be shown to President Carter on Friday. This figure dominated the news over the weekend. This experience brought home to me the importance of marine geologic work and has stimulated me to remain in this field ever since.

By now I have been at a spectrum of other institutions including University of Miami, Scripps, ETH in Zurich, and UNC-Chapel Hill. At all these places I have had great colleagues and the freedom to largely pursue curiosity driven science topics. Twenty-years ago I move to MBARI, an NGO supported by the Packard Foundation, dedicated to the development of new tools and techniques to study the ocean. This is a dream job for me, not only being able to use high-tech tools, but to work on the development of the next generation of instruments with marine applications in mind.

At the moment I am especially interested in thanking the group who nominated me for this award, some of them are here in the audience tonight.

Perhaps of greatest importance is the support and encouragement I have had from my family. I am particularly thankful to my wife Mary who let me go to sea for 105 days one year while I also focused on teaching 3 lecture courses during most of the time I was actually home. In the meantime, she moved us across town, after selling our old house and buying a new one when our two boys were still both in diapers. Without her consistent support, I would not be here now.

I feel incredibly fortunate that I have been able to pursue a career in Marine Geology.

Thanks again for this great honor.



Pamela Hallock-Muller accepts the Raymond C. Moore Medal from President Lynn Soreghan

Raymond C. Moore Medal For Sustained Excellence in Paleontology Pamela Hallock-Muller

Pamela Hallock-Muller receives the Raymond C. Moore Medal 2019 for Sustained Excellence in Paleontology. She has incorporated a totally new perspective in the analysis of the fossil record through the study of carbonates as "living" systems. Despite the precaution necessary to apply the principle of uniformitarianism, understanding the present is still crucial to interpreting the past and vice versa. Her prolific scientific production includes more than 120 articles, 21 book chapters, 30 articles in conference proceedings, and a very long etcetera.

Pam is probably well known for her contribution on the knowledge of Foraminifera including both modern and fossil assemblages, mostly regarding the symbiont-bearing forms. Since her PhD dissertation in 1977, under the supervision of Johanna M. Resig (University of Hawaii), she has delved into the ecological requirements that control the development of LBF, especially light, temperature and distribution of nutrients. Through her research, Pam has addressed issues such as the evolutionary reasons that have allowed the development of these "giant" unicellular organisms. She has profoundly analyzed the effect of symbiosis as a major evolutive force to explain the success of the large foraminifers to spread in warm, oligotrophic settings. These and other important contributions in the field of the Micropaleontology have made her deserving of the 2015 Joseph A. Cushman Award.

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To perform her research, Pam has used a vast array of techniques, from classical taxonomy to molecular biology that have conducted to more accurate paleoecological analyses using the foraminifers and other carbonate-producing organisms as interpretative tools of the fossil record. Pam's most outstanding scientific contributions include the model of the nutrient distribution in the ocean as a trophic continuum and its incidence on the carbonate producers. Such an approach was the first step of a research line that has given light to issues such as the evolution and distribution of the mixotrophic organisms (e.g. symbiont-bearing foraminifers and zooxanthellate corals) and bioconstructing biota, avoiding a uniformitarianly-biased model.

Last but not least, Pamela Hallock-Muller has a very long record of MSc. and PhD. mentoring. She has personally contributed to the formation of generations of young scientists, being a reference in the professional and human aspects. Pam has been always concerned for equal opportunities of minorities and women in Geosciences, actively participating in different programs. For all this, she has been awarded as Association for Women Geoscientists Outstanding Educator Award (1999), Alfred P. Sloan Foundation Minority Ph.D. Program's Mentor of the Year (2012), USF-CMS Graduate Mentor of the Year (2013-14, 2016), Albert Nelson Marquis Lifetime Achievement Award (2018), Kosove Distinguished Graduate Teaching and Service Award (2018). She also has been recognized as one of the Top 25 Women Professors in Florida (2013).

Biographers: Guillem Mateu-Vicens and Luis Pomar

Citation: *For her outstanding contribution in the paleoecology of the symbiont-bearing foraminifers and other carbonate-producing biota, applying a modern and integrative biogeological approach.*

Reply from Pamela Hallock Muller

Thank you President Soreghan and SEPM for this amazing honor; and my deep gratitude to my long-time colleague, Al Hine, for nominating me, to Luis Pomar and Guillem Mateu Vicens for their citation, and to Marie Aubry, Bill Berggren, Isabella Premoli-Silva, Noel James, and many others who have found value in my musings on forams, paleoecology, carbonate sedimentology, and paleoceanography.

My academic background was in ecology and then oceanography, which I call "ecology on steroids" because of the multi-disciplinary aspects. Fortunately, as a graduate student at the University of Hawai'i, Keith Chave encouraged me to study carbonate production by larger benthic foraminifera (LBF).

As a pre-Title IX Master's student who also was married, very few in the academic realm thought I would amount to anything. As I was finishing my PhD, two mentors told me that they feared that I would never be able to do anything with my PhD. Fortunately, as I was job-hunting in spring of 1978, two remarkable geologists, Don Toomey and Sal Mazzullo, had left their faculty positions at the University of Texas of the Permian Basin. The Dean of Science and Engineering there needed someone to teach required paleontology, sedimentology and

stratigraphy courses. The Dean called me for an interview and the two members of the Earth Sciences faculty, Emilio Mutis and Robert Reeves, supported hiring me. Fortunately, Don had left a really nice assortment of fossils to use as teaching specimens, and Sal regularly led or participated in area field trips, and sedimentology "surrounded" us, often even in the air!

My five years in Odessa were essentially my "post doc" in geology". And this is where my career began to vastly benefit from SEPM activities. At that time, the West Texas Geological Society hosted two speakers per month for Tuesday noon seminars. The Permian Basin SEPM hosted a speaker one other Tuesday, with a field trip the previous Saturday. My students and I would pile into a university van, often at 4 am, to drive to the Guadalupe Mountains or Carlsbad Caverns National Park, or other notable geological locales, on professionally led field trips. In the field, we met legendary figures in sedimentology including Robin Bathurst, Arnold Bouma, Noel James, Chris Kendall, Conrad Neumann, Lloyd Pray, Bob Scott, and many others.

At the same time, thanks to my background in oceanography and experience on Pacific coral reefs, I recognized some misunderstandings, especially of carbonate depositional systems. When I moved to the University of South Florida in 1983, where my teaching load was much lighter but expectations for research were much greater, I was able bring to fruition a series of manuscripts that I had begun in Texas. However, my ideas were controversial, as most new interpretations tend to be. My first attempts to publish a paper on nutrient suppression of reefs were met with "insufficient interest to review" and a third attempt by "too controversial". Then my luck changed. Wolfgang Schlager contacted me and offered some geological examples to support my hypothesis, at roughly the same time that SEPM initiated a new journal, *Palaaios*, focusing on the interface of biological and sedimentological processes. Our 1986 paper appeared in the third issue of the first volume of *Palaaios*, and has averaged 30 citations per year since.

In the 1990s, much of my funding was to study modern forams. But my interest in Cenozoic carbonates, especially those dominated by LBF, continued. On a field trip in Tunisia, I met Luis Pomar, who, years later, sent his student Guillem Mateu-Vicens to work in my lab. The three of us have been brainstorming ideas and publishing papers on "carbonate conundrums" since.

In conclusion, I am deeply grateful to so many from whom I have learned so much, with special recognition to Al Hine and my many graduate students. Many thanks to the wonderful staff of SEPM with whom I have enjoyed interacting over the past 40 years. And most importantly, to my partner in the love of natural history and exploration of the world for the past 50 years, Bob Muller.

Society Awards



David Mohrig accepts the Francis J. Pettijohn Medal
from President Lynn Soreghan

Francis J. Pettijohn Medal For Sustained Excellence in Sedimentology David Mohrig

Dr. David Mohrig received his B.A. from Pomona College, and his M.S. and Ph.D. degrees from the University of Washington. David then held a post-doctoral position at the St. Anthony Falls Laboratory of the University of Minnesota. He worked for nearly five years for Exxon Production Research Company in Houston. In 2001 David moved back into academia as faculty at the Massachusetts Institute of Technology. In 2006 David joined the faculty at the Jackson School of Geosciences of the University of Texas at Austin. He is currently the John E. “Brick” Elliott Centennial Professor and Associate Dean for Research at the Jackson School.

David’s broad research program is defined by a quantitative approach that uses transport processes and sedimentary deposits to unravel the evolution of terrestrial and submarine landscapes. The breadth of his research bridges all boundaries between geomorphology, sedimentology and stratigraphy. His research signature is quantitative field observation combined with experimentation and an insightful understanding of sediment dynamics to address classical questions.

David and his collaborators have long defined the forefront of mechanistic sedimentology. Their works have addressed the fundamentals of sediment-gravity flows and submarine channeling, created one of the first reduced-complexity models for migrating bedforms, redefined the dynamics of the lower reaches of the Mississippi River system, and detailed the processes of delta construction. Collectively, with these works, David has given us a pragmatic roadmap for addressing fundamental questions through careful observations and measurements, but in never losing sight of the objective.

Continuing hallmarks of David’s career are mentoring, collaboration across disciplines, and generous service. David is a motivating teacher, and he has inspired a very large number of students. His generosity of time in mentoring graduate students and post-doctoral fellows has been

remarkably fruitful. One of his finest talents is his ability to rapidly assimilate data across a range of studies and provide creative insights.

Biographer: Gary Kocurek

Citation: *In recognition of continuing excellence in quantitative sedimentology and stratigraphy, for enthusiastic teaching, for fruitful mentorship, and for generously nurturing the science.*

Reply from Dr. David Mohrig

I want to begin by thanking everyone who played a role in nominating me for this medal. It comes fifty years after my father took me on my first field trip to the Dekorah Shale near Wangs, MN. The fossils were great, but equally memorable was the sticky mud produced by recent rain. My father was not pleased about this, but he didn’t let it deter our expedition. So, thank you dad. I was hooked and have been pursuing geoscience ever since.

Throughout the years I have been fortunate to have had a great set of teachers, colleagues, students and post-docs. Formal training began in my 3-person geology department at Pomona College, where I took every class and more offered by Donald Zenger, Alex Baird, and Donald McIntyre. In graduate school at the University of Washington I was extremely fortunate to work with James Dungan Smith and Jody Bourgeois. I cannot imagine being trained by a more potent combination of Earth scientists on how to work with records from ancient and modern depositional environments. I am equally in debt to my post-doctoral advisors Chris Paola, Paul Heller, who I still dearly miss, and Gary Parker. From them I learned to embrace the art and complicated simplicity of sedimentary geology. All of this training led to exciting positions and a large set of great colleagues at ExxonMobil, MIT, and UT-Austin. At The University of Texas, my professional home for the last 13 years, I am continually thankful for being able to work with Gary Kocurek, Ron Steel, Charlie Kerans, and particularly Jim Buttle who keeps all of the magic happening in the lab.

Studying the transport and depositional processes that build Earth’s surface requires moving across a wide range of time and space scales. Because of this, the problems we are seeking to understand are typically under constrained and we need to use all available tools to make progress. For me this has meant collecting lots of field data from modern and ancient systems, carrying out lots of laboratory experiments, and constructing the simplest useful numerical models. Each of these elements is time consuming, but they feed on each other and lead to real discoveries. I really want to thank all of the students and post-docs that have followed me down this wonderful scientific rabbit hole. I am pretty sure that I have learned as much or more from them than they have from me.

I want to conclude by thanking my wife, Chiu-Mi Lai for joining me on this life adventure, and thanking SEPM once again for this honor of being awarded the Francis J. Pettijohn Medal for Sedimentology.

Society Awards



Frank Corsetti accepts the William R. Dickinson Medal from President Lynn Soreghan

William R. Dickinson Medal

For mid-career research geoscientist, significantly influencing the sedimentary geology community with innovative work; with a track record of impactful publications, pioneering approaches and the establishment of an influential research program
Frank Corsetti

Frank Corsetti has played a fundamental role in building the growth of geobiology over the past twenty years. As a Professor at the University of Southern California (USC), he teaches the undergraduate majors course in sedimentology and stratigraphy. From that base his teaching and research have branched out into a wide variety of syntheses of sedimentological, geochemical, and paleobiological approaches. He first made his mark as a Ph.D. student at the University of California, Santa Barbara, with innovative studies that aimed to provide finer resolution of the Precambrian-Cambrian boundary than was previously known. Frank then went deeper in time with a post-doc on Snowball Earth. These Precambrian studies drew him into the then nascent fields of geobiology and astrobiology. This research in particular has been focused on modern and ancient stromatolites, and whether they had a biogenic or abiogenic origin. With a focus on critical times of change in environments and the evolution of life, Frank has naturally also been drawn to major events recorded in the Phanerozoic. Much recent research has been on the causes and consequences of the mass extinction at the end of the Triassic. Thus within the context of a modern sedimentary geologist Frank has built his outstanding research career through the lens of deep-time geobiology.

While at USC Frank has established himself as an award-winning teacher of undergraduates and mentor for numerous graduate students. Frank has also been unusually active with service to journals. Thus he was an Editorial Board Member for Geobiology and an Associate Editor for *Palaaios*, and is an Associate Editor for the *Journal of Sedimentary Research*. His service to SEPM and related societies has also been expansive, as President (2009-2010) of the Pacific Section of SEPM, and then Vice Chair

(2008-2010) and Chair (2010-2012) of the Geological Society of America Geobiology and Geomicrobiology Division. These are the activities of a very busy academic. Yet somehow Frank found the time from 2010-2016 to be the Co-Director of the International Geobiology Summer Course. Many of the graduates of this course have gone on to faculty positions in geobiology. And he now finds the time to be the Chair of the Department of Earth Sciences at USC.

Thus Frank Corsetti's wide array of professional activities is truly astonishing. His leadership in developing new research directions and his very generous contributions to our profession, particularly with students, carry a very big footprint.

Citation: In recognition for his contributions as one of the major architects of the emerging field of geobiology, through a unique combination of sedimentological, geochemical, and paleobiological approaches, as well as for his extensive service to the profession and outstanding contributions to the education and mentoring of undergraduate and graduate students.

Reply from Frank Corsetti

I am most grateful to the Society for selecting me as the recipient for this year's William R. Dickinson Award.

I was first exposed to Bill Dickinson's work as an undergrad at UC Davis where I learned the ways of QFL diagram—that one could interpret tectonic environments of the past simply by looking at the grains in a sandstone. To this day, I teach the same methods to my students, so I feel a connection to the award's namesake.

I want to acknowledge my formative undergrad experience at UC Davis, and in particular thank Dave Kidder, Eldridge Moores and Richard Cowen for supporting me and giving me my first taste of independent research, allowing me, against better judgment, to investigate ooid occurrences across the Precambrian-Cambrian boundary in Death Valley during the summer before my senior year.

That senior thesis led me to UC Santa Barbara to work with Stan Awramik (aka Mr. Stromatolite) on the Precambrian-Cambrian boundary. It was there that I met my academic brother, Russell Shapiro, a person who still inspires me on a daily basis. I am also eternally grateful to my committee members: Jim Boles (who gave me a deep appreciation for diagenesis), Bruce Tiffney (who influenced my scientific communication skills), and Jim Kennett (who told me to always keep my eye on the big picture, however small the thing in front of me at the time might be).

After my postdoc with the great John Crowell studying life during snowball Earth, I started what could be described as my dream job at the University of Southern California, investigating among other things "what constitutes a biosignature in the rock record", and the geobiology of critical intervals, including extinction events.

I am particularly grateful to my senior faculty mentor, David Bottjer (winner of the SEPM Moore Award), Will Berelson, and rest of the faculty at USC.

Though a bit of serendipity, I was tapped as an assistant professor to help with the newly formed International Geobiology Summer course shortly after I arrived at USC. The course was initially

Society Awards

funded by the Agouron Institute after they had the insight to nurture the nascent field of Geobiology by sponsoring a summer course that brings geologists and biologists together in an immersive program. I eventually became co-director of the course with John Spear from the Colorado School of Mines between 2010-2016. Through the course, I was exposed to a whole new way of thinking that drives my research to this day. Via the course, I had a chance to interact with and influence students who have since gone on to become professors at major universities across the world.

But, if I had to decide what I am most proud of in my career, it would have to be my graduate students. I am very proud of what they have accomplished and what they have helped me accomplish. I am grateful to have mentored Dr. Nate Lorentz, Dr. Alison Olcott, Dr. Pedro Marengo, Dr. Jake Bailey, Dr. Sean Loyd, Dr. Victoria Petryshyn, Dr. Carie Frantz, Dr. Yadira Ibarra, Dr. Dylan Wilmeth, and Dr. Olivia Piazza, and, since this is a mid career award, I look forward to continuing to mentor and learn from my current students Reena Joubert, Scott Perl and Alison Cribb and others in the future.

Finally, I am eternally grateful to the support given to me by my wife, Cara, my parents, and family over the years. As the only geologist in the family, they think what I do is crazy. I am not necessarily going to disagree with that.

To conclude, I sincerely thank the society for bestowing upon me the William R. Dickinson award. Thank you very much.

his primary and secondary schooling. George then completed his B.Sc. (Honours) at Queen's University in Kingston Ontario (1972) before receiving an M.Sc. (1976) and Ph.D. (1979) in Geology from McMaster University in Hamilton Ontario. After finishing his doctorate, he accepted an Assistant Professor position at the University of Georgia (1978-1981) in order to work closely with two pioneering figures known for integrating ichnological and sedimentological concepts – Robert W. Frey and James D. Howard. After three productive years in Georgia, he returned to Canada to take up a post at the Alberta Research Council (1981-1984) before becoming an Associate Professor of Stratigraphy at the University of Alberta. George eventually held a Tier 1 Canada Research Chair in Petroleum Geology (2002-2009) before being elevated to the title of Distinguished University Professor (2009), the highest designation offered to academic faculty at the University of Alberta. He assumed the C.R. Stelck Chair in Petroleum Geology in 2013 and held it until his untimely passing in 2018.

During his time as a Professor, George made significant contributions to the research landscape of sedimentary geology, through his supervision of numerous undergraduate honours theses as well as the training of 63 M.Sc. students, 16 Ph.D. and 7 postdoctoral fellows. Furthermore, through the 107 short courses he provided to the professional community, the number of students and industry trainees he influenced during his career numbered in the thousands. George took great pride in his role of training young geoscientists and he loved to find ways to interweave scientific principles with philosophical musings to create a truly unique mentorship experience. In addition to his activities as an educator, George contributed to some 250 scientific publications, amassing more than 13,000 citations, while also co-founding the international journal *Ichnos* and establishing academic and industry standards for the practical identification of trace fossils in core that are used by scientists worldwide today. Through these numerous academic and applied endeavors, George was able to successfully integrate ichnological concepts with sedimentology and stratigraphy in a way that could be applied effectively to petroleum and resource exploration and development.

Over the course of his career, George's significant scientific achievements have been recognized with numerous national and international awards, most notable, his receiving SEPM's prestigious R.C. Moore Medal in 2003 for contributions in paleontology, the Grover E. Murray Distinguished Educator Award of the AAPG in 2008, the Canadian Society of Petroleum Geology's Medal of Merit in 2006 and R.J.W. Douglas Medal for outstanding contributions to sedimentary geology in Canada in 2014. The Geological Association of Canada honoured George with the Hutchison Medal in 1994, Elkanah Billings Medal in Paleontology in 2017, and their highest award, the Logan Medal in 2013. George also received an Honorary Membership from the CSPG in 2010 and was an elected Fellow of the Geological Society of America (2014) and a Fellow of the Royal Society of Canada (F.R.S.C.; 2001).

In the past, ichnology was often perceived as an inconsequential science. George was instrumental in broadening the understanding of ichnology while also positioning it as a fundamental component of applied sedimentary geology. My father, was surprised and humbled to be named a Twenhofel Medal recipient and was definitely most



S. George Pemberton's family accepts the William F. Twenhofel Medal for George

William F. Twenhofel Medal For a Career of Outstanding Contributions in Sedimentary Geology Dr. S. George Pemberton

Professor S. George Pemberton is awarded the William F. Twenhofel Medal for an outstanding career focused on integrating ichnology with clastic and carbonate sedimentology, sequence stratigraphy and petroleum geology.

George Pemberton was born in Preston, Lancashire, England before emigrating to Dundas, Ontario, Canada where he finished

Society Awards

excited by the fact that the society had chosen to recognize an Ichnologist with their highest honour. George's scientific heritage is truly remarkable, but he wanted nothing more than to further the science of ichnology, and for those he mentored to surpass his accomplishments. Anyone who spent any amount of time around George would immediately recognize his deep respect for the history of the science, and he had a quote at his disposal for almost any situation. In particular, he would often close his university courses by citing Bernard of Chartres – *"We are like dwarves perched on the shoulders of giants, and thus we are able to see more and farther than the latter. And this is not at all because of the acuteness of our sight or the stature of our body, but because we are carried aloft and elevated by the magnitude of the giants."* It is poignant to honour George's legacy with the Twenhofel Medal and recognize that we all can *"see farther"* because of him.

Biographer: Dr. Erin Pemberton

Citation: *During his distinguished academic career, S. George Pemberton was able to make ichnology (the study of trace fossils) accessible to the broader sedimentological community and instrumental in the analysis of sedimentology, stratigraphy and petroleum geology. Through his scientific contributions and prolific mentorship, George Pemberton has left an indelible stamp on generations of sedimentary geologists. As he was fond of saying – Saxa Loquuntur – "Rocks Speak".*

Reply from Dr. S. George Pemberton

I would first like to thank the SEPM for this most unexpected honour. The SEPM has been, over the years, my most favorite society. I first joined it in 1976 as graduate student and have continued to contribute to it in a scientific sense ever since. I also owe a great deal to my nominators James MacEachern and Murray Gingras. James and Murray were PhD students of mine and I am proud to say that my relationships with them have evolved from ones of teacher through to colleague, and now I hope trusted friends. Their achievements give me great satisfaction and they continually do me proud and remind me why I chose to be a Professor.

Some of the most influential people in my career- Gerry Middleton, Bob Weimer, Larry Sloss and Noel James have all won this medal. I feel honoured and humbled to be in their company.

When you receive recognition you cannot help but reflect back on your career. In the late 1980's, I integrated essential elements of ichnology to clastic sedimentology and genetic stratigraphy and then applied this knowledge to petroleum exploration and production geology around the world. It has been directly involved in 104 projects for 80 companies working in 35 geological provinces. I have also conducted over 130 petroleum industry short courses - this has involved working with a lot of people! However, there are always defining moments. I generally remember defining moments when my thinking was altered and most of them were initiated by remarkable individuals that I had the pleasure of working with over the years. Some of my personal defining moments would have to include:

- Doing my PhD research with at McMaster University. Especially the Facies Models class at McMaster University taught by Gerry Middleton, Roger Walker and Frank Beales.

- The first time I read the translation of Wilhelm Schäfer's book *"Ecology and Palaeecology of Marine Environments"*
- A two-week field session looking at the Bradore and Forteau formations in Labrador with Noel James.
- My friendship and working relationship with the late Bob Frey at the University of Georgia.
- My first trip to Sapelo Island, Georgia with Bob Frey and Jim Howard.
- A field session with Roger Walker on the Cardium Fm. in Alberta.
- The first time I read Derek Ager's *"The Nature of the Stratigraphical Record"*
- My first trip to the Athabasca Oil Sands with Grant Mossop.
- A day in the field on the Tocito Sandstone with John Van Wagoner in the San Juan Basin.
- My first trip to Russia with John Dolson.
- A day at the core shed in Jodhpur, India with Keith Shanley.
- Getting to publish and work on projects with my daughter, Dr. Erin Pemberton.

I feel privileged to have worked with all of these remarkable people and they have done more for me than I can ever repay. I want to thank them all for their generosity in sharing their insights with me. Nothing is more satisfying than scientific discovery with mentors and friends. Our profession fosters it through the comradery of fieldwork and we should all embrace it.

I also suffer no delusions that the real reason I am standing here is because of the talented group of graduate students that I have had the privilege to supervise over the years. I have been lucky to supervise 60 current and former M.Sc. students and I am especially proud of the 28 Ph.D. students and post-doctoral fellows that I have worked with. During the career of many professors, complacency can take hold and many times it is a talented graduate student who can lift you out of it and inspire you to new heights. There have been times in my career when my graduate students have taught me more than I have taught them. I want to thank these 88 talented individuals for all their hard work and dedication. They have all made me a better person and a better geologist!

If I could offer a few words of advice to young geologists, it would be to embrace field work and first principles. Our profession deals with the earth and the old adage *"The best geologists are the ones who have seen the most rocks"* is true. There is no substitute for experience and the thrill of new discovery is only one core box or one outcrop away. Always remember that the reservoir is the rock and *not* a squiggly line on paper. If you understand the rock, then you will understand the reservoir. I take great inspiration from a phrase commonly used by the late sedimentologist Gerry Friedman: *Saxa Loquuntur* or "Rocks Speak". It is our job to learn their language and listen to what they are telling us.

I must also thank the four most important people in my life: my three children Sarah, Erin, and Joshua who provide me with unbounded joy and most importantly my beautiful wife Teresa who has always put up with my quirks (and believe me - I have many quirks), allowed me to be who I am, and loved me without reservation. Finally, I would like to dedicate this medal to my parents, George and Ethel, who taught me to believe in myself and to always be my own man. I hope I have lived up to their expectations.

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2019 ACE OUTSTANDING PRESENTATION AWARDS

Outstanding Oral Presentation:

Gary Couples

Where is the Water? - A Physical Analysis of Hydraulic Fracturing Processes

Outstanding Poster Presentation:

Andrew Mitten

Depositionally Conditioned Training Images for Fluvial Sandsheet Reservoir Models: Examples From the Lower Castlegate Sandstone, Utah, USA and Jamuna River, Northern India

Top Research Symposium Oral Presentation:

Tina Dura

Improving Subduction Zone Hazards Assessments Using the Coastal Stratigraphic Record

2019 Outstanding Papers in the Journal of Sedimentary Research

Young Ji Joo and Bradley B. Sageman

2014, Cenomanian to Campanian Carbon Isotope Chemostratigraphy from the Western Interior Basin, U.S.A.: JSR 84:7.

Christopher J. Stevenson, Christopher A.-L. Jackson, David M. Hodgson, Stephen M. Hubbard, and Joris T. Eggenhuisen

2015, Deep-Water Sediment Bypass: JSR 85:9.

2019 Outstanding Paper in Palaios

Emma R. Locatelli, Sean McMahon, and Hans Bilger

2017, Biofilms Mediate the Preservation of Leaf Adpression Fossils by Clays: PAL 32:11.

2019 Outstanding Paper in Palaios

Honorable Mention

Adam Tomašových, Ján Schlögl, Adrián Biroň, Natália Hudáčková, and Tomáš Mikuš

2017, Taphonomic Clock and Bathymetric Dependence of Cephalopod Preservation in Bathyal, Sediment-Starved Environments: PAL 32:3.

Audited Financial Report – 2018



INDEPENDENT AUDITOR'S REPORT

To the Council
SEPM (Society for Sedimentary Geology)

Report on the Financial Statements

We have audited the accompanying financial statements of SEPM (Society for Sedimentary Geology) (a not-for-profit organization), which comprise the statements of financial position as of December 31, 2018 and 2017, and the related statements of activities and cash flows for the years then ended, and the related notes to the financial statements.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Emphasis of Matter

As discussed in Note 1 to the financial statements, in 2018, the Society adopted Accounting Standards Update No. 2016-14, *Not-For-Profit Entities (Topic 958): Presentation of Financial Statements of Not-For-Profit Entities*. Our opinion is not modified with respect to this matter.

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of SEPM (Society for Sedimentary Geology) as of December 31, 2018 and 2017, and the changes in its net assets and its cash flows for the years then ended in accordance with accounting principles generally accepted in the United States of America.

HoganTaylor LLP

Tulsa, Oklahoma
September 4, 2019

www.hogantaylor.com

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SEPM (Society for Sedimentary Geology)

STATEMENTS OF FINANCIAL POSITION

December 31, 2018 and 2017

	2018	2017
Assets		
Current assets:		
Cash and cash equivalents	\$ 713,469	\$ 1,205,931
Certificates of deposit	575,000	-
Accounts receivable	15,016	108,571
Receivable from affiliate	111,055	219,281
Inventory	85,729	85,733
Prepaid expenses	48,588	28,734
Total current assets	1,548,857	1,648,250
Furniture and equipment, net	33,524	22,256
Investments	3,021,046	3,147,465
Total assets	<u>\$ 4,603,427</u>	<u>\$ 4,817,971</u>
Liabilities and Net Assets		
Current liabilities:		
Accounts payable and accrued liabilities	\$ 41,383	\$ 84,638
Deferred income	336,478	390,233
Total current liabilities	377,861	474,871
Net assets without donor restrictions:		
Undesignated	2,953,567	2,804,177
Board designated	1,271,999	1,538,923
Total net assets without donor restrictions	<u>4,225,566</u>	<u>4,343,100</u>
Total liabilities and net assets	<u>\$ 4,603,427</u>	<u>\$ 4,817,971</u>

See notes to financial statements.

2

Audited Financial Report – 2018**SEPM (Society for Sedimentary Geology)****STATEMENTS OF ACTIVITIES**

Years ended December 31, 2018 and 2017

	2018	2017
Net Assets Without Donor Restrictions		
Revenues, Gains and Other Support		
Dues	\$ 104,915	\$ 102,195
Publications	301,715	240,848
Journal of Sedimentary Research - subscriptions, royalties and other	607,384	513,392
Palaos - subscriptions, royalties and other	158,700	163,613
Continuing education	29,975	50,750
Meetings, conferences and field trips	122,003	225,320
Membership activities	3,318	9,428
Grant award from SEPM Foundation, Inc.	66,902	-
Net realized and unrealized gain (loss) on investments	(349,538)	228,393
Investment income	159,640	112,929
Total revenues, gains and other support	1,205,014	1,646,868
Expenses		
Program expenses:		
Publishing costs - Journal of Sedimentary Research	176,441	185,617
Publishing costs - Palaos	112,712	119,414
Publications	225,839	252,069
Continuing education	8,358	21,575
Meetings, conferences and field trips	116,285	205,380
Membership activities	276,467	258,212
Grant award to SEPM Foundation, Inc.	57,918	-
General and administrative	348,528	340,717
Total expenses	1,322,548	1,382,984
Change in net assets without donor restrictions	(117,534)	263,884
Net assets, beginning of year	4,343,100	4,079,216
Net assets, end of year	\$ 4,225,566	\$ 4,343,100

See notes to financial statements.

3

SEPM (Society for Sedimentary Geology)**STATEMENTS OF CASH FLOWS**

Years ended December 31, 2018 and 2017

	2018	2017
Cash Flows from Operating Activities		
Change in net assets	\$ (117,534)	\$ 263,884
Adjustments to reconcile change in net assets to net cash provided by (used in) operating activities:		
Depreciation	7,023	7,521
Net realized and unrealized (gain) loss on investments	349,538	(228,393)
Change in operating assets and liabilities:		
Accounts receivable	93,555	(64,257)
Receivable from affiliate	108,226	(57,162)
Inventory	4	(13,455)
Prepaid expenses	(19,854)	(5,319)
Accounts payable and accrued liabilities	(43,255)	22,055
Deferred income	(53,755)	(75,732)
Net cash provided by (used in) operating activities	323,948	(150,858)
Cash Flows from Investing Activities		
Purchase of furniture and equipment	(18,291)	(6,476)
Purchase of investments and certificates of deposit	(1,029,159)	(111,478)
Proceeds from sales of investments	231,040	39,000
Net cash used in investing activities	(816,410)	(78,954)
Net change in cash and cash equivalents	(492,462)	(229,812)
Cash and cash equivalents, beginning of year	1,205,931	1,435,743
Cash and cash equivalents, end of year	\$ 713,469	\$ 1,205,931

See notes to financial statements.

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SEPM (Society for Sedimentary Geology)**NOTES TO FINANCIAL STATEMENTS**

December 31, 2018 and 2017

Note 1 – Nature of Operations and Summary of Significant Accounting Policies**Nature of operations**

On September 27, 1987, the Society of Economic Paleontologists and Mineralogists (the Society) became a separate entity from the American Association of Petroleum Geologists. Prior to this date, the Society was an unincorporated technical division of the American Association of Petroleum Geologists. In the event of the dissolution of the Society, the net assets will be donated to charitable, scientific or educational institutions; no assets shall inure to the benefit of any member. In 1989, the Society changed its name to SEPM (Society for Sedimentary Geology).

The objective of the Society is to advance the science of stratigraphy through the dissemination of scientific knowledge of, promotion of, research in, and other contributions to paleontology, sedimentology, and allied disciplines.

The Society primarily deals with members of the organization for services to universities and oil-related companies for attendance at educational schools, workshops, and short courses, and for sales of special publications. Substantially all customers are located in oil-producing regions both within the United States of America and internationally.

Basis of presentation

The financial statements of the Society have been prepared on the accrual basis of accounting and, accordingly, reflect all significant receivables, payables and other liabilities.

The financial statement presentation is in accordance with the Financial Accounting Standards Board (FASB) Accounting Standards Update (ASU) 2016-14, *Not-for-Profit Entities (Topic 958): Presentation of Financial Statements of Not-for-Profit Entities*, which requires the presentation of two classes of net assets – net assets with donor restrictions and net assets without donor restrictions.

Descriptions of the two net asset categories and the types of transactions off-setting each category are as follows:

Without donor restrictions – Net assets that are not subject to donor-imposed stipulations and are available for use at the discretion of the Board of Directors (the Board) and/or management for general operating purposes. The governing board has designated, from net assets without donor restrictions, net assets for board designated purposes. Board designated net assets are subject to self-imposed limits by action of the Board of Directors. Board designated net assets may be earmarked for future programs, investment, contingencies, purchase or construction of property and equipment, or other uses.

With donor restrictions – Net assets subject to donor-imposed restrictions. Some donor-imposed restrictions are temporary in nature and may or will be met by expenditures or actions of the Society, or by the passage of time. The Society reports gifts of cash and other assets as revenue with donor restrictions if received with donor stipulations that limit the use of the donated assets. When a donor

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restriction expires, that is, when a stipulated time restriction ends, or purpose restriction is accomplished, the net assets are reclassified as net assets without donor restriction and reported in the statements of activities as released from restrictions. The Society has no net assets with donor restrictions as of December 31, 2018 or 2017.

Cash and cash equivalents

The Society considers all cash and short-term securities with maturities of three months or less when purchased as cash and cash equivalents.

Inventory

Inventory consists of special publications (including short course notes), which excludes the journals published by the Society. The limited excess quantities of the journals are provided as reference material to the profession and, as such, are not included in inventory.

Special publications are valued at cost (specific identification) in the year of publication and the two succeeding years. After this period, publications are valued at 50% of cost, with the further limitation that the valuation of publications over five years old is limited to 100 copies.

Furniture and equipment

Furniture and equipment are valued at cost. Depreciation is provided using the straight-line method over useful lives of three to seven years.

Revenue recognition

The Society recognizes income and expense on the accrual accounting basis for financial statement presentation. Membership dues and subscriptions are recognized as revenue ratably over the period of membership or subscription term. Publications, continuing education and membership activities are recognized as revenue when the publication is delivered, and the service is provided.

Contributions

Contributions, including unconditional promises to give, are recognized as revenue in the appropriate category of net assets in the period received. Unconditional promises to give are recorded net of an allowance for estimated uncollectible receivables. This estimate is based on such factors as prior collection history, type of contribution and the nature of the fund-raising activity. Donor-restricted contributions are classified as net assets without donor restriction if the restrictions are satisfied in the same reporting period in which the contribution was received.

Pledges receivable are charged off when deemed uncollectible by management.

Income taxes

The Society is exempt from federal and state income taxes under Section 501(c)(3) of the Internal Revenue Code and has been determined not to be a private foundation. As a result, as long as the Society maintains its tax exemption, it will not be subject to income tax.

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Reclassifications

Certain items in the 2017 statement of activities have been reclassified to conform to the current year financial statement presentation. Previously reported net assets and change in net assets are unaffected by the reclassifications.

Use of estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America (U.S. GAAP) requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the accounting period. Actual results could differ from those estimates.

Adoption of new accounting pronouncement

The FASB issued ASU 2016-14, *Not-for-Profit Entities (Topic 958): Presentation of Financial Statements of Not-for-Profit Entities*. ASU 2016-14 decreases the number of net asset classes from three to two, requires reporting of underwater amounts of donor restricted endowment funds in net assets with donor restrictions and enhances disclosures about underwater endowments, requires disclosures of how an entity manages its liquid available resources to meet cash needs for general expenditures within one year and the availability of a nonprofit's financial assets to meet cash needs for general expenditures within one year, and requires reporting of expenses by nature and function, as well as an analysis of these expenses. ASU 2016-14 was adopted on a retrospective basis in 2018. As a result, in this 2018 presentation, the Society expanded its disclosures on liquidity as required by this ASU (See Note 2).

New accounting pronouncements yet to be adopted

In May 2014, the FASB issued ASU 2014-09, *Revenue from Contracts with Customers (Topic 606)*, requiring an entity to recognize the amount of revenue to which it expects to be entitled for the transfer of promised goods or services to customers. The updated standard will replace most existing revenue recognition guidance in U.S. GAAP when it becomes effective and permits the use of either a full retrospective or retrospective with cumulative effect transition method. In August 2015, the FASB issued ASU 2015-14 which defers the effective date of ASU 2014-09 one year making it effective for annual reporting periods beginning after December 15, 2018. The Society has not yet selected a transition method and is currently evaluating the effect that the standard will have on the financial statements.

In February 2016, the FASB issued ASU No. 2016-02, *Leases (Topic 842)*, which seeks to increase transparency and comparability among organizations by recognizing lease assets and lease liabilities on the balance sheet and by disclosing key information about leasing arrangements. Consistent with current U.S. GAAP, the recognition, measurement, and presentation of expenses and cash flows arising from a lease by a lessee will depend primarily on its classification as a finance or an operating lease (i.e., the classification criteria for distinguishing between finance leases and operating leases are substantially similar to the classification criteria for distinguishing between capital leases and operating leases under the previous guidance). However, unlike current U.S. GAAP, which requires only capital leases to be recognized on the balance sheet, ASU No. 2016-02 will require both operating and finance leases to be recognized on the balance sheet. Additionally, the ASU will require disclosures to help investors and other financial statement users better understand the amount, timing, and uncertainty of cash flows arising from leases, including qualitative and quantitative requirements. Topic 842 is effective for years beginning after December 15, 2019, with early adoption permitted. Upon adoption in the year ended

December 31, 2020, the Society will record a lease asset and liability equal to the present value of its future minimum lease payments on the statement of financial position and include additional disclosures on its leases in the footnotes to the financial statements.

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Subsequent events

Management has evaluated subsequent events through September 4, 2019, the date the financial statements were available to be issued.

Note 2 – Financial Assets and Liquidity Resources

The Society's financial assets available within one year of the statement of financial position date for general expenditures as of December 31, are as follows:

	2018	2017
Assets:		
Cash and cash equivalents	\$ 713,469	\$ 1,205,931
Accounts receivable	15,016	108,571
Certificates of deposits	575,000	-
Investments	3,021,046	3,147,465
Total financial assets available within one year	4,324,531	4,461,967
Less:		
Amounts unavailable for general expenditures within one year due to:		
Board restricted funds	(1,271,999)	(1,538,923)
Total financial assets available to management for general expenditure within one year	\$ 3,052,532	\$ 2,923,044

The Society structures its financial assets to be available as its general expenditures, liabilities and other obligations come due.

The Society regularly monitors the availability of resources required to meet its operating and capital needs. Although the Society does not intend to spend its Board restricted funds, amounts could be made available with approval from the Board if necessary.

Note 3 – Inventory

Inventory consists of the following at December 31:

	2018	2017
Publications	\$ 79,069	\$ 82,065
Continuing education materials	-	338
Work in process	6,660	3,330
Total inventory	\$ 85,729	\$ 85,733

Inventory write-downs were \$19,556 and \$14,598 for the years ended December 31, 2018 and 2017, respectively.

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Note 4 – Furniture and Equipment

A summary of furniture and equipment at December 31, is as follows:

	2018	2017
Furniture and equipment	\$ 142,592	\$ 173,070
Less accumulated depreciation	(109,068)	(150,814)
Total	\$ 33,524	\$ 22,256

Note 5 – Fair Value Measurements

The fair value measurement standards establish a consistent framework for measuring fair value and a fair value hierarchy based on the observability of inputs used to measure fair value. These inputs are summarized in three broad levels:

- Level 1 Quoted prices in active markets for identical assets or liabilities.
- Level 2 Observable inputs other than Level 1 prices, such as quoted prices for similar assets or liabilities; quoted prices in markets that are not active; or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.
- Level 3 Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

There were no investment transfers due to changes in the observability of significant inputs between Level 1, Level 2 and Level 3 assets during the years ended December 31, 2018 and 2017.

The Society's assets measured at fair value on a recurring basis consisted of the following:

	Fair Value Measurements as of December 31, 2018			
	Level 1	Level 2	Level 3	Total
Certificates of deposit	\$ -	\$ 575,000	\$ -	\$ 575,000
Mutual funds	3,021,046	-	-	3,021,046
	\$ 3,021,046	\$ 575,000	\$ -	\$ 3,596,046
	Fair Value Measurements as of December 31, 2017			
	Level 1	Level 2	Level 3	Total
Mutual funds	\$ 3,147,465	\$ -	\$ -	\$ 3,147,465

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Investments held at December 31, consist of the following:

	Historical Cost	Market (Carrying Amount)
2018		
General investments:		
Cash and cash equivalents	\$ 53,864	\$ 53,864
Growth and capital appreciation funds	884,825	912,853
Bond and balanced funds	776,369	791,897
International funds	115,465	93,897
Total general investments	1,830,523	1,852,511
New Frontiers Fund:		
Cash and cash equivalents	37,963	37,963
Growth and capital appreciation funds	580,890	791,285
Bond and balanced funds	191,712	190,697
International funds	124,808	148,590
Total New Frontiers Fund	935,373	1,168,535
Total investments	\$ 2,765,896	\$ 3,021,046
2017		
General investments:		
Cash and cash equivalents	\$ 53,083	\$ 53,083
Growth and capital appreciation funds	927,546	1,119,648
Bond and balanced funds	544,964	568,165
International funds	78,687	114,448
Total general investments	1,604,280	1,855,344
New Frontiers Fund:		
Cash and cash equivalents	1,208	1,208
Growth and capital appreciation funds	555,143	885,040
Bond and balanced funds	188,314	193,597
International funds	125,673	212,276
Total New Frontiers Fund	870,338	1,292,121
Total investments	\$ 2,474,618	\$ 3,147,465
Realized and unrealized gains (loss) for the years ended December 31, were as follows:		
	2018	2017
Unrealized gains (loss)	\$ (417,698)	\$ 222,153
Realized gains	68,160	6,240
	\$ (349,538)	\$ 228,393

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Note 6 – Deferred Income

Deferred income consists of the following at December 31:

	2018	2017
Dues	\$ 54,489	\$ 62,614
Subscriptions	189,904	234,389
Publications in process and other	92,085	93,230
	<u>\$ 336,478</u>	<u>\$ 390,233</u>

Note 7 – Commitments

The Society leases its office under an operating lease having an expiration date of July 2023. Minimum annual rental commitments are as follows:

Year	Amount
2019	\$ 23,976
2020	24,111
2021	24,435
2022	24,624
2023	14,364
	<u>\$ 111,510</u>

Rent expense was approximately \$37,000 and \$46,000 for the years ended December 31, 2018 and 2017, respectively.

Note 8 – Net Assets Without Donor Restrictions

Net assets without donor restrictions consist of the following at December 31:

	2018	2017
General fund	\$ 2,953,567	\$ 2,804,177
Board designated:		
New Frontier Fund	988,067	1,114,677
Other	283,932	424,246
Total	<u>\$ 4,225,566</u>	<u>\$ 4,343,100</u>

The New Frontier Fund represents board-designated funds for the purpose of funding the development of science and education. The board has designated one-third of the royalties from the Copyright Clearance Center, Inc. to be used specifically for the building of this fund.

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Note 9 – Related Party Transactions

The Society received \$8,000 for each of the years ended December 31, 2018 and 2017, from SEPM Foundation, Inc. (an affiliated nonprofit entity) for management fees. The management fees are netted against general and administrative expenses in the statements of activities.

The Society contributed \$57,918 to SEPM Foundation, Inc. during 2018 for Mountjoy Carbonate conference costs. No such contributions were made during 2017. Additionally, SEPM Foundation, Inc. contributed \$66,902 to the Society during 2018 to fund capital projects. No such contributions were made during 2017.

The Society had receivables from SEPM Foundation, Inc. of \$111,055 and \$219,281 at December 31, 2018 and 2017, respectively, resulting from the Society funding SEPM Foundation, Inc. grants and capital project expenses, net of SEPM Foundation, Inc. revenue received by the Society.

Note 10 – Concentrations

Approximately 50% and 25% of revenue in 2018 and 2017, respectively, is royalty income.

The Society maintains accounts and deposits with financial institutions which are insured by the Federal Deposit Insurance Corporation (FDIC). Typically, cash balances exceed the FDIC insurance limits.

Note 11 – Functional Expenses

The Society's functional expense by natural classification for the year ended December 31, 2018, is as follows:

	Program	General and administrative	Total
Salaries, taxes and benefits	\$ 349,230	\$ 195,300	\$ 544,530
Professional fees	-	23,731	23,731
Office expense	16,417	10,632	27,049
Occupancy	-	47,353	47,353
Maintenance and rental	-	13,071	13,071
Travel	26,628	2,999	29,627
Conferences and conventions	74,327	-	74,327
Insurance	-	23,260	23,260
Publication	272,518	-	272,518
Educational program	8,358	-	8,358
Grants and awards	57,918	-	57,918
Membership activities	168,624	-	168,624
Other expenses	-	25,159	25,159
Depreciation	-	7,023	7,023
Total	<u>\$ 974,020</u>	<u>\$ 348,528</u>	<u>\$ 1,322,548</u>

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The Society's functional expense by natural classification for the year ended December 31, 2017, is as follows:

	Program	General and administrative	Total
Salaries, taxes and benefits	\$ 338,751	\$ 199,859	\$ 538,610
Professional fees	-	10,575	10,575
Office expense	18,515	8,946	27,461
Information technology	9,403	-	9,403
Occupancy	-	43,203	43,203
Maintenance and rental	-	27,023	27,023
Travel	30,769	2,037	32,806
Conferences and conventions	164,972	-	164,972
Insurance	-	19,844	19,844
Publication	312,423	-	312,423
Educational program	21,575	-	21,575
Membership activities	145,859	-	145,859
Other expenses	-	21,709	21,709
Depreciation	-	7,521	7,521
Total	<u>\$ 1,042,267</u>	<u>\$ 340,717</u>	<u>\$ 1,382,984</u>

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