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Education:

1980-1986 Scripps Institution of Oceanography, La Jolla, California; Ph.D. in Oceanography

1976-1978 University of Miami, Miami, Florida; M.S. in Marine Geology and Geophysics

1970-1975 Harvard College, Cambridge, Massachusetts; B.A. cum laude in Geology

Professional Activities:

1999 – present, Senior Scientist & Chair of Research and Development, Monterey Bay Aquarium Research Institute, Moss Landing, California

2000 – Adjunct Professor (by-courtesy appointment), Stanford University, Palo Alto, California

1996 –1999, Amos L. Hawley Distinguished Professor, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina

1987 –1998, Assistant (1987-1991), Associate (1991-1993), and Full (1993-1999) Professor, Geology Department and Marine Sciences Curriculum, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina

1986 – 1993, Assistant (1986-1988) and Associate (1988-1993) Research Scientist, Marine Physical Laboratory, Scripps Institution of Oceanography, La Jolla, California

1985-1986, Visiting Scientist, ETH Zurich, Switzerland

1980-1985, Research Assistant, Scripps Institution of Oceanography, La Jolla, California

1977-1980 & 1975-1976, Geologist, Resource Assessment Group of the U. S. Geological Survey's Office of Marine Geology, Woods Hole, Massachusetts

Research Interests:

- Determining the frequency, distribution and environmental significance of continental margin pore water seeps is a central theme of my research efforts. In the past I have worked on diverse seeps including those in the floors of coastal lagoons, on continental slopes, at bases of carbonate escarpments, sinkholes, over the crests of diapirs, and sections of the continental rise that contain extensive amounts of gas hydrates. Efforts are also being directed at establishing a better understanding of the relationship between fluid flow and the generation of submarine geomorphic features such as canyon heads, pockmarks, pingos, and submarine landslides.
- Establishing the *in situ* characteristics of marine gas hydrates is a major objective of both past and future work. Recent focus is on methods to detect the presence of gas hydrate in near seafloor sediments and in the evaluation of mechanisms to transfer gas hydrate carbon from the seafloor into the ocean and atmosphere.
- Understanding the diverse processes that initially form and subsequently erode continental margins is a recurrent theme of my past work. The modern processes in submarine canyons and continental margin sediment failures are of particular interest.
- Developing geological experiments that make use of submarine cables to observe ephemeral events and to conduct manipulative experiments within the subsurface.

### Teaching Experience:

During my 12 years as a faculty member at UNC-Chapel Hill, I taught 3 courses per year. Every year I offered an undergraduate course in Stratigraphy and a graduate course in Paleoceanography. The content of the third course varied considerably, but always within the constraints of what else is offered within the department. Periodically I taught a large (~150 student) introductory geology class. Most years I was involved in seminar courses. The topics ranged from strontium isotopes as tracers of natural processes, the evolution of continental margin geology, the environmental significance of gas hydrates, to a required seminar for new graduate students in the general fields of soft rock geology.

### Professional Society Memberships:

American Association of Petroleum Geologists  
American Geophysical Union  
Society of Economic Paleontologists and Mineralogists

### Honors and Service:

ODP Sedimentary Geochemistry and Physical Processes Panel 1992 - 1995  
Recipient of the "Z. Reynolds Smith" sabbatical leave 1992  
UNC-CH Faculty Council 1992-1995  
Associate Chair, UNC-CH Geology Department 1993 - 1999  
SEPM Plenary Speaker 1995  
ODP - Site Survey Panel 1995 - 1997  
JOI-USSAC Distinguished Lecturer 1996-1997  
Awarded Amos Hawley Distinguished Professorship 1996  
Assistant Editor, Geological Society of America Bulletin 1996 - 2008  
Featured Speaker at COSAIRES 1996 Gas Hydrate Workshop  
ODP Science Steering and Evaluation Panel (Interior) 1997-2000  
Chair - ODP - Gas Hydrate Program Planning 1998-1999  
U.S. Senate Testimony on Gas Hydrates, May 1998  
Organizing Committee, Third International Conference on Gas Hydrates July 18-22, 1999  
Organizing Committee, Fourth International Conference on Gas Hydrates, May 19-23, 2002  
Organizing Committee, Fifth International Conference on Gas Hydrates, June, 12-16, 2005  
Chairman of MBARI's Marine Activities Committee 2002-2009  
Science and Technology Advisory Committee (STAC) Orion 2004-2006  
International Science Advisory Committee - Korea 2007  
Organizing Committee, Sixth International Conference on Gas Hydrates, July 6-10, 2008  
German Council of Science and Humanities- Deep-Sea Research Vessel Panel 2008-2009  
Editorial Board Marine Geology 2008-present  
International Science Advisory Committee - Korea 2009  
Chair MBARI Research and Development Department, 2009-present  
Chair, National Research Council, Committee on the Assessment of Methane Hydrate (2008-2010)  
Elected to Board of Trustee's Consortium for Ocean Leadership (2010-2013)

### Sea-Going and Field Experience:

Before coming to MBARI participated in the scientific party of 36 UNOLS and USGS research cruises and have been the chief or co-chief scientist on 14 of these cruises including being co-chief on ODP Leg 164. At MBARI have been participated in over 222 ROV dives, mostly as Chief Scientist. Since 2008 have served as the principle investigator for 40 AUV dives for near seafloor multibeam and surveys. Also have experienced in the collection of single and multichannel seismic reflection data; seismic refraction data; piston, box, and gravity cores; dredge and grab samples; heat flow data; surface vessel multibeam bathymetry, Deep-Tow, high resolution and GLORIA side-scan-sonar surveys on oceanographic vessels. 26 dives in research submersibles including 12 in ALVIN and 4 in NR-1. Participated in mapping/sampling projects in Montana, Mexico, Guatemala, and the Southern Alps. Also have extensive experience coring in shallow waters from small boats, especially for pore water analysis.

## Publications:

- Gould, S.J., and Paull, C.K., 1977, Natural history of the Cerion VIII, geographic variation of Cerion (Mollusca Pulmonata) from the eastern end of its range (Hispaniola to the Virgin Islands: coherent patterns and taxonomic simplification, *Breviora*, no. 445, p. 1-45.
- Dillon, W.P., Paull, C.K., Buffler, R.T., and Fail, J.P., 1979, Structure and development of the Southeast Georgia Embayment and northern Blake Plateau, preliminary analysis: *in* Watkins, J.S., Montadert, L., and Dickerson, P.W., eds., *Geological and Geophysical Investigations of Continental Margins*, American Association of Petroleum Geologists, Memoir 29, p. 27-41.
- Dillon, W.P., Paull, C.K., Dahl, A.G., Patterson, W.C., 1979, Structure of the continental margin near the COST GE-1 well site from a common depth point seismic reflection profile: *in* Scholle, P.A., ed., *Geological studies on the COST GE-1 well, U. S. South Atlantic Outer Continental Shelf area*: U. S. Geological Survey Circular 800, p. 97-107.
- Dillon, W.P., Klitgord, K.D., and Paull, C.K., 1979, Geologic setting of the COST GE-1 well, U. S. South Atlantic Outer Continental Shelf area: *in* Scholle, P.A., ed., *Geological studies on the COST GE-1 well, U. S. South Atlantic Outer Continental Shelf area*: U. S. Geological Survey Circular 800, p. 4-6.
- Paull, C.K., and Dillon, W.P., 1980, Structure, stratigraphy, and geologic history of the Florida-Hatteras shelf and inner Blake Plateau, *American Association of Petroleum Geologist Bulletin*, v. 63, no. 3, p. 339-359.
- Dillon, W.P., Grow, J.A., and Paull, C.K., 1980, Unconventional gas hydrate seals may trap gas off the Southeastern U. S., *Oil and Gas Journal*, January 7, p. 124-130.
- Paull, C.K., and Dillon, W.P., 1980, The erosional origin of the Blake Escarpment, an alternative hypothesis, *Geology*, v. 8, p. 538-542.
- Manheim, F.T., and Paull, C.K., 1981, Patterns of groundwater salinity changes in a deep continental-oceanic transect off the southeastern Atlantic coast of the U. S. A., *Journal of Hydrology*, v. 54, p. 95-105.
- Sheridan, R.E., Crosby, J.T., Kent, K.M. Dillon, W.P., and Paull, C.K., 1981, The geology of the Blake Plateau and Bahamas Region, *in* *Geology of the North Atlantic borderlands*, eds., Kerr, J. W., and Fergusson, A. J., Canadian Society of Petroleum Geologists, Memoir 7, Calgary, Alberta, 1981, p. 487-502.
- Liddicoat, J.C., Denham, C.R., and Paull, C.K., 1981, Paleomagnetism of cored sediments from Lake Atitlan, Guatemala: A preliminary study, *Geofisica International*, v. 20, n. 3, p. 263-270.
- Paull, C.K., and Dillon, W.P., 1982, Reply to "Comment on erosional origin of the Blake Escarpment: an alternative hypothesis", *Geology*, v. 4, p. 409-463.
- Dillon, W.P., and Paull, C.K., 1982, Summary of the development of the continental margin off Georgia based on multichannel and single channel seismic-reflection profiling and stratigraphic well data, *in* Arden, D.D., Beck, B. F., and Morrow, E., eds., *Proceedings of the Second Symposium on Southeastern Coastal Plain Geology*, Department of Natural Resources, Atlanta, p. 197-200.
- Manheim, F.T., and Paull, C.K., 1982, Hydrochemistry of the formation fluids in onshore and offshore strata in the Southeast Georgia Embayment, *in* Arden, D.D., Beck, B.F., and Morrow, E., eds., *Proceedings of the Second Symposium on Southeastern Coastal Plain Geology*, Department of Natural Resources, Atlanta, p. 211-218.
- Paull, C.K. and Dillon, W.P., 1982, The stratigraphy of the Florida-Hatteras shelf and slope and its relationship to the offshore extension of the principal artesian aquifer, *in* Arden, D.D., Beck, B.F., and Morrow, E., eds., *Proceedings of the Second Symposium on Southeastern Coastal Plain Geology*, Department of Natural Resources, Atlanta, p. 178-181.

- Dillon W.P., Klitgord, K.D., and Paull, C.K., 1983, Mesozoic development and structure of the continental margin off South Carolina, in Gohn G.S., ed. Studies related to the Charleston, South Carolina, Earthquake of 1886 - tectonics and seismicity, U. S. Geological Survey Professional Paper 1313, p. N1-N16.
- Dillon W.P., and Paull, C.K., 1983, Marine gas hydrates -II: Geophysical evidence, in Cox, J. L., ed., Natural Gas Hydrates: Properties, Occurrences, and Recovery, Butterworth Publishers, Boston, p. 73-90.
- Dillon, W.P., Popenoe, P., Grow, J.A., Klitgord, K.D., Swift, B.A., Paull, C.K., and Cashman, K.V., 1983, Growth faulting and salt diapirism: Their relationship and control in the Carolina Trough, eastern North America, in Watkins, J.S., and Drake, C.L., Studies in continental margin geology, American Association of Petroleum Geologists Memoir 34, p. 21-48.
- Paull, C.K., Hecker, B., Neumann, A.C., Sikes, E.L., Hook, J., Corso, W., Freeman-Lynde, R., Commeau, R., Golubic, S., and Curray, J., 1984, The seeps find at the Florida Escarpment, *Oceanus*, v. 27. no. 3, p. 32-34.
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- Paull, C.K., Jull, A.J.T., Toolin, L.J., and Linick, T., 1985, Stable isotopic evidence for chemosynthesis in an abyssal seep community, *Nature*, 315, 709-711.
- Dillon, W.P., Paull, C.K., and Gilbert, L.E., 1985, History of the Atlantic continental margin off Florida: the Blake Plateau basin; in Poag, C. W., ed., Geologic evolution of the United States Atlantic margin: New York, Van Nostrand Reinhold, p. 189-215.
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- Paull, C.K., and Neumann, A C., 1987, Continental margin brine seeps: Their geological consequences, *Geology*, v. 15, p. 545-548.
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- Neumann, A.C., Bebout, B.C., McNeese, L.R., Paull, C.K., and Pearl, H.A., 1989, Modern stromatolites and associated mats: San Salvador Bahamas, IN 4th Symposium on the Geology of the Bahamas, p. 235-251.
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Abstracts:

Author or co-author on 79 abstracts before coming to MBARI.  
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Current active IODP proposals

Storegga Slide Gas Hydrate Drilling  
(with Andreassen, K., Mienert, J., Paull, C.K. Parkes, J. Foucher, J.-P. Sejrup, H.P., Kvalstad, T.J., and Behrmann, J.)  
IODP-557-Full2.

External Support at MBARI

Lucia Chica Project  
Chevron  
March 2007-present.  
\$150,000

Detection of Methane Leakage to the Arctic Shelf  
NSF  
February 15, 2002 to January 31, 2005  
\$301,742

Pore Water Analyses: Gulf of Mexico  
USGS-DOE  
4/25/02 to 3/3/04  
\$170,200

Methane Release in Submarine Landslides  
NSF (subcontract through U. of Wyoming)  
March 2001 to December 2005  
\$146,889

Previous Support:

The Role of Methane and Freshwater in the Origin of High Latitude Submarine Pockmarks  
API  
1998-2000  
\$59,998.

Determining Gas Content Stratigraphies in ODP Cores by Monitoring Variations in Temperature, Pressure and Conductivity During Core Recovery  
NSF  
2002  
\$72,580.

Isotopic Calibration of Geochemical Signals Associated with Gas Hydrates  
JOI-USSAC  
1997-1999  
\$21,444

Isotopic Assessment of the Effect of Gas Hydrates on Sulfate Profiles and Recognition of Anaerobic Methane Oxidation Using Isotopic Gradients  
JOI-USSAC  
1996-1998  
\$28,750

Strontium Isotopic Measurements on Samples from ODP 164: Tracers for Pore Water Movement and Diagenetic Progressions (with P. Fullagar)  
JOI-USSAC  
1996-1998  
\$13,439

Stable Isotopic Measurements on ODP leg 164 Samples: Characterizing the Mobile Carbon Components  
JOI-USSAC  
1996-1998  
\$42,654

Methane-Derived Carbonate Cements  
From JOI-USSAC  
9/18/95 to 9/17/98  
\$40,000

Comparison of Microbial Sulfate Reduction Rates & Anaerobic Methane Oxidation over known Gas hydrate Deposits and <sup>14</sup>C dating of Sediment from the Base of the Cape Fear Slide  
JOI-USSAC  
1996-1998  
\$6149

Gas Hydrate Sampling on the Blake Ridge and Carolina Rise  
From - Texas A&M  
6/1/95 to 5/31/96  
\$45,8111

Gas Hydrate Sampling on ODP Leg 164  
From - Texas A&M  
6/1/95 to 5/31/96

\$7,668

Adaptation and Testing of Marine Heat Flow Instrumentation for Coastal Hydrologic Investigations  
University Research Council  
1996-1997  
\$1,500

Test and Calibration of the ODP, PCS Gas Manifold  
From - JOI-USSAC  
8/1/94 to 5/31/96  
\$18,564

Deep-Tow Studies of Atlantic Diapirs and Deep Sea Carbonate Escarpments: Geomorphology, Geochemical Processes, and Geological Consequences  
from NSF \$370,640 (with UCSD)  
for January 1, 1990 to November 31, 1993.

Continental Rise Gas Hydrates: Assessing Their Extent and Effects  
from NSF  
for \$154,061.  
from February 1, 1992 to January 31, 1994.

Sampling the Marine Gas-hydrate Reservoir: Assessing the Methane Inventory, Internal Dynamics, and Potential of Methane Discharges to the Atmosphere.  
from Southern Regional Center of NIGEC - DOE  
for \$99,295  
from July 1, 1991 to June 30, 1993

Examination of the Evolution of the Florida-Hatteras Slope and its Relationship to the Aquifers of the Southeastern United States.  
two companion proposals to NSF and NOAA/NURP  
for \$99,708 (NSF)  
from May 1, 1992 to April 30, 1994.

Submarine Canyon Formation and Continental Slope Morphologic Development: Synthesis of Geophysical Data from the "Point Area" Off North Carolina  
from NOAA/NURP  
for \$36,198  
from May 1, 1992 to April 30, 1993.

with Tim Bralower:  
Development of a Strontium Isotope Stratigraphy for the Middle Cretaceous.  
from NSF  
for \$79,990  
from January 1, 1992 to December 31, 1993.

with Chris Martens  
Acquisition of a Gas-Chromatography - Combustion - Isotope Ratio Mass Spectrometer System  
from NSF  
for \$230,625  
from October 1, 1992 to September 30, 1993

Bennett Island Plumes: Analysis, Significance, and Future Prospective  
from NIGEC  
for \$44,937  
from July 1, 1992 to June 30, 1993.

Age and Geochemistry of Sediments Associated with the Carolina Gas-Hydrate Field  
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for \$30,490  
from June 1, 1992 to July 31, 1993.

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from JOI/USSAC - Texas A&M  
for \$16,801  
from June 1, 1992 to June 31, 1994.

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Paleogene Isotopic Stratigraphy of ODP Site 865.  
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for \$23,134  
from June 1, 1992 to June 31, 1994.

Gas Hydrate Sampling on the Blake Ridge and Carolina Rise: A proposal to the Ocean Drilling Program  
resulted in ODP Leg 164.

NSF Fellowship for Jennifer Coston  
NSF  
for \$11,728  
from September 15, 1988 to February 28, 1990

Siltation History of University Lake  
OWSA  
for \$26,019  
May 1, 1989 to July 1, 1991

Florida Escarpment: Genesis, Geomorphology and Seepage Processes  
NSF  
for \$56,428  
from November, 15, 1988 to March 31, 1990.

Effects of Ion Exclusion During Hydrate Formation on Continental Rise Pore Waters  
North Carolina Sea Grant  
for \$20,966  
from August 1, 1990 to July 31, 1991.

Geological/Geochemical Studies at the Sulfide Seep Sites at the Base of the West Florida Escarpment, Gulf of  
Mexico  
from NSF (written by CKP, submitted with Dr. Curry)  
for \$246,759  
from March 1, 1986 to February 28, 1988.

Deep Sea Carbonate Escarpments: Genesis, Geomorphology, and Basal Processes  
from NSF (written by CKP, submitted with Dr. Fred Spiess)  
for \$342,718  
from January 1, 1986 to December 31, 1987.

Seabed Sulfide Seep Dissolution Experiments  
from American Chemical Society (written by CKP, submitted with Dr. Curry)  
for \$30,878  
from May 1, 1986 to August 31, 1988

Carbon-14 Preparation Facility  
from UNC Marine Council  
for \$4,433  
from June 1, 1986 to June 1, 1987.

West Florida Escarpment: Genesis, Geomorphology and Basal Processes  
from NSF (subcontract from UCSD)  
for \$32,000  
from May 1, 1987 to March 31, 1988.

Carolina Salt Domes: Sea-Floor Structure, Geological Processes and Geochemical Consequences  
From Duke/UNC Marine Consortium  
for 10 days of R/V Hatteras Shiptime  
from August 31, 1988 to September 10, 1988.

Carolina Salt Domes: Seed Project  
From University Research Council  
for \$1,500  
from May 1, 1988 to April 30, 1990

Isotope fractionation in Coccolith Carbonate in Phytoplankton Blooms  
Junior Faculty Development Grant  
For \$3,000  
January 1, 1989 to December 31, 1989

Limestone Dissolution Experiment  
From American Chemical Society (subcontract to UNC from UCSD)  
for \$4,500  
summer 1987

Geological/Geochemical Studies at the Sulfide Seeps at the Base of the West Florida Escarpment, Gulf of Mexico  
from NSF  
for \$ 37,408  
from March 1, 1987 to December 31, 1988

Nitrogen Isotopes in Abyssal Chemosynthetic Ecosystems  
University Research Council  
for \$1,500  
from December 1, 1987 to November 30, 1989

Alvin Diving on the West Florida Escarpment  
from NSF (written by CKP, submitted with Dr. Curray)  
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From July 1, 1983 to June 30, 1985.

Alvin Diving on the Blake Escarpment  
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from October 1, 1981 to October 15, 1981.

Guatemalan Lakes: Assessing their Volcanic Earthquake Hazards  
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