

Richard Banks Coffin

EMAIL: richard.coffin@tamucc.edu; rcoffin@strategic-carbon.com

EDUCATION

NSF funded Postdoctoral Fellow (Mar. 1986 - Dec. 1987) Gordon College, Wenham, MA. (Advisor: Richard T. Wright)

Ph.D., Oceanography (Sep. 1982 - June 1986), University of Delaware. (Advisor: Jonathan H. Sharp)

M.S., Microbiology (Sep. 1978 - May 1980), University of New Hampshire (Advisor: Galen Jones)

B.A., Microbiology (Sep. 1973 - June 1977), University of New Hampshire.

POSITIONS

Full Professor, Chair Department of Physical and Biological Sciences, Texas A&M University Corpus Christi, July 2014 – Present.

Founder-President Strategic-Carbon LLC 2014 - Present.

Section Head Code 6114, Marine Biogeochemistry. Lead for international development of methane hydrate exploration and deep ocean sediment carbon sequestration. Naval Research Laboratory, DC, September 2003 to June 2014.

Senior Research Microbiologist, Naval Research Laboratory, Washington DC, June 1996 to September 2003.

Research Microbial Ecologist, US Environmental Protection Agency, Gulf Breeze, FL. July 1990- June 1996.

Adjunct Faculty Member, Hawaii Natural Energy Institute, Univ. of Hawaii, Honolulu, Hawaii, August 2000- 2014.

Adjunct Faculty Member, College of Marine Studies, University of Delaware, Lewes DE September 1996 - 2005.

Adjunct Faculty Member at FSU and TAMU, September 1990 – 2000.

BACKGROUND

Isotope geochemistry is applied to determine key ecosystem cycles. Work has focused on soil groundwater systems, estuaries, coastal and deep ocean water column and sediment. Field work has been global with recent priorities on Navy harbors through the US, the Arctic and Antarctic Oceans and coastal regions off Chile, New Zealand, Canada, Norway, Japan and the US. During this work contribution has been through working as leader or co-leader of planning, execution and interpretation. Work has addressed environmental assessment, energy exploration and field technology development.

Examples of success include providing a 25 million dollar cost savings plan for harbor remediation in Liepaja Latvia and focusing methane hydrate energy exploration sites off the coasts New Zealand, Alaska, Texas and Chile providing 10 – 30 million dollar savings at each potential drill site. Recent development has applied the broad geochemical background to water purification and fuel refinery applications.

KEY CAREER PROGRAMS

2014 – present, Department Chair for Physical and Environmental Sciences, Texas A&M University – Corpus Christi, hire as full tenured professor to lead research and education development in broad range of national and international coastal and deep ocean topics.

2014 – present, Private company contracts for environmental remediation and petroleum exploration in China, Michigan, New Jersey, and Louisiana.

1996 – present, Adjunct Faculty Member – Universities of Delaware, Hawaii, Florida State, Texas A&M, Texas A&M Corpus Christi. Serving on 25 students Ph.D. and Masters committees and providing invited lectures to classes. Additional academic interactions have been with students from William and Mary University, the Catholic University of Valparaiso and University of Auckland.

2000 – present, Ocean Methane Hydrate Exploration - NRL and TAMU-CC lead for national and international methane hydrate research and development. Chief and Co-chief scientist off the coasts of US (Gulf of Mexico and Arctic), Canada, Chile, New Zealand and Norway on 16 expeditions. Approximate budget \$50 mil.

2000 – present, International Methane Hydrate Research and Development Workshops. Co-organizer and developer of workshops to plan international methane hydrate research globally. Planners from the US, Norway and Japan have lead international workshops in Washington DC, Hawaii, India, Canada, Corpus Christi Texas, New Zealand, Chile, Scotland, Norway and Japan. 25 countries participated. Approximate budget \$2 mil.

1998 – 2008, Military Harbor Environmental Assessment. Lead and co-lead harbor remediation programs in 8 military harbors to assess contaminant sources and natural attenuation schedules. Approximate budget \$12 mil.

2002 – 2004, Boron nanoparticle fuel enhancement. Approximate budget \$1 mil.

2000 – 2004, Deep Ocean Carbon Sequestration - Chief scientist for field operations on an international deep ocean carbon sequestration involving participants from the US, Norway, Canada, Japan and Australia. Approximate budget \$5 mil.

1992 – 1995, Florida Key Coral Reef Health. Chief Scientist on 6 expeditions through the Florida Keys to assess environmental impact on coral reefs. Approximate budget \$ 2 mil.

1989 – 1996, Gulf of Mexico Hypoxia Assessment. Chief Scientist on 12 research expeditions to study Mississippi River impact on the Gulf of Mexico coastal hypoxia. Approximate budget \$6 mil.

1990 -1995, National Biotechnology Risk Assessment Manager, US EPA Gulf Breeze. Planning and review of biotechnology risk assessment research conducted at EPA National Research Laboratories. Approximate budget \$75 mil.

1990 – 1993, Ecuador Mangrove Deforestation/Shrimp Pond Development Environmental Impact. Assessment of environmental impact for mangrove deforestation and the resulting development of shrimp ponds resulted in a thorough ecosystem assessment. The data gathered resulted in Ecuadorian president requesting a legal testimony in an environmental impact law suit between shrimp and banana farmers. Approximate budget \$1.5 mil.

RESEARCH EXPERIENCE

2017 – Present, CoPI with researchers from University of Southern California and University of Auckland for International Offshore Drill Program (IODP) planning off the eastern coast of New Zealand, Chatham Rise for assessment of deep sediment CO₂ loading; relation to climate change and seismic methane gas hydrate data interpretation. PI on stage 2 site evaluation proposal for geochemical assessment to NSF.

2017 – Present, Consulting for private industry on the development of new cavitation systems for water purification and fuel refining.

2017 – Present, Oversight on seismic data interpretation for petroleum mining in Sulfur Louisiana.

2017 - Present, CoPI for development of UAV and sensors to conduct airborne assessment of methane and carbon dioxide gas fluxes in the coastal ocean. Research is supported through NSF MRI.

2017 – 2019, Chief scientist leading assessment of Texas Coastal oxygen demand. Research is supported through Texas OneGulf

2015 Co-chief scientist on an expedition off the Hikurangi Margin, New Zealand to provide geochemical assessment of a double BSR. Research is supported through NIWA, DOE, and ONRG.

2013-2014, Co-chief scientist of overflight assessment and ground truthing of Arctic methane flux

from tundra, thermokarst lakes and coastal waters to the atmosphere. Researchers from NOAA, Harvard, USACE and NRL are supported with funding from NSF and Navy RRTO.

2011-2013, Co-chief scientist, New Zealand, paleo-geochemistry and methane hydrate exploration. 3 expeditions on the RV Polaris and RV Sonne. ONR, DOE, GEOMAR, and New Zealand government funding.

2009, Chief Scientist, Beaufort Sea, methane hydrate research, energy and climate. 4 nations, 34 scientists. ONR, DOE, NRL funding.

2007, Chief Scientist, Alaminos Canyon, Texas-Louisiana Shelf. Methane hydrate exploration. DOE, ONR funding.

2006, Co-chief scientist, Hikurangi Margin, New Zealand plate convergence contribution to vertical methane flux. ONR, NRL, ONRG, and DOE funding.

2000-2006, Military harbor remediation research, District of Columbia, Philadelphia, Charleston, Honolulu, Norfolk, San Diego, San Francisco. ONR funding.

2003-2004, Co-chief scientist, two expeditions off the mid Chilean Margin. Methane hydrate exploration.

2000-2003, Co-chief scientist, three expeditions on the Cascadia Margin, Canada. Methane hydrate exploration.

2002-2005, Chief scientist, three expeditions of the Texas-Louisiana Shelf. Methane hydrate exploration. DOE, ONR funding.

1999-2004, Chief scientist - initiate preliminary survey for international experiment in carbon sequestration off Hawaii and Norway. Four cruises were for 7-10 days with scientists from Japan, Norway, Canada and the US. 6 sub dives on Loihi. DOE funding.

1999-2001, Co-Chief scientist -Five cruises in Russian Military Harbor Liepaja Latvia, working on ONR funded harbor remediation. Collaborative with University of Latvia. ONR, ONR Global funding.

1998, 2000, Co-Chief scientist, 14 submarine dives in the Gulf of Mexico, from the Edmund Link. Sample for $\Delta^{14}\text{C}$ and $\delta^{13}\text{C}$ analysis to initiate understanding of methane hydrate formation. NRL funding.

1992-1996, Co-Lead Scientist, Groundwater organic contaminant natural attenuation and source

identification. Gainesville, FL and Port Hueneme CA. SERPD funding.

1995, Antarctica, Co-Chief Scientist, Ozone depletion. NSF funding.

1992-1995, Gulf of Mexico Hypoxia. Chief Scientist, 10 expeditions. EPA funding.

1990-1993, Florida Keys, coral health assessment. Chief Scientist 6 expeditions. EPA funding.

1990-1995, US EPA National Manager Biotechnology Risk Assessment, Gulf Breeze FL.

1990-1993, Ecuador Mangrove Research. World Bank and EPA funding.

1992, Ecuador shrimp pond toxicity. Ecuadorian government funding.

1989-1990, Valdez oil spill natural attenuation research. EPA and Exxon funding.

1987-1988, Application of carbon isotope analysis to assess microbial carbon cycling in Massachusetts Estuaries. NSF sponsored post doctoral research, advisor: Dr. Richard T. Wright, Gordon College

1982-1986, Microbial amino acid and peptide cycling in the Delaware River. Dissertation Research, University of Delaware, advisor: Dr. Jonathan H. Sharp.

1978-1980, Two expeditions on the WHOI RV Oceanus, Deep sea microbial research. Masters Research, University of New Hampshire, advisor: Dr. Galen Jones.

PUBLICATIONS (163 TOTAL, h-index 45, citations 5826)

Journals

Stott, L., Davy, B. Shao, J. Coffin, R., Pecher, I., Neil, H., Rose, P. In Press. CO₂ Release from Pockmarks on the Chatham Rise-Bounty Trough at the Glacial Termination. *Paleoceanography and Paleoclimatology*; #2019PA003674R

Shao, J., Stott, L., Gray, W.R., Rae, J.W.B., Greenop, R., Pecher, I., Coffin, R.B., Neil, H. In Press. Atmosphere-Ocean CO₂ Exchange Across the Last Deglaciation from the Boron Isotope Proxy. *Paleoceanography*.

Moreira, R.G., Butler-Purry, K., Carter-Sowell, A., Walton, S., Juranek, I.V., Challoo, L., Regisford, G., Coffin, R., Spaulding, A. In Press. Innovative Professional Development and

Community Building Activity Program Improves URM Graduate Student in STEM Experiences.
Journal of STEM Education.

Kvamme, B. *, Coffin, R., Wei, N., Zhou, S., Zhao, J., Li, Q., Saeidi, N., Chien, C., Dunn-Rankin, D. Sun, W., Zarifi, M. 2019. Stages in dynamics of hydrate formation and consequences for design of experiments for hydrate formation in sediments. *Energies*- 12, 3399; doi:10.3390/en12173399.

Waghorn, K., Pecher, I., Strachan, L.J., Crutchley, G., Bilas J., Coffin, R. *et al.* 2018. Paleo-Fluid Expulsion and Contouritic Drift Formation on the Chatham Rise, New Zealand. *Basin Research* **30**, 5-19, doi:10.1111/bre.12237..

Pecher, I.A., Villinger, H., Kaul, N., Crutchley, G.J., Mounthjoy, J.J., Huhn, K., Kukowski, N., Henrys, S.A., Rose, P.S., Coffin, R.B. 2017. A fluid pulse on the Hikurangi subduction margin – evidence from heat flow transect across the upper limit of gas hydrate stability. *Geophysical Research Letters* V2. <https://doi.org/10.1002/2017GL076368>

Coffin R., Hamdan, L., Plummer, R., Smith, J. Yoza, B. Larsen, R. Montgomery, M. 2017. Coastal Beaufort Sea Alaskan Shelf Organic Carbon Source(s): Strong Spatial Variations. *Energies* 10, 1265; doi:10.3390/en10091265.

Uchida, T., Kvamme, B., Coffin, R. Norio, T. Oyama, A., Masutani, S. 2017. Review of Fundamental Properties of Gas Hydrates Breakout Sessions of the International Workshop on Methane Hydrate Research and Development. *Energies* 10, 747; doi:10.3390/en10060747

Lorenson, T., Greinert, J., Coffin, R. 2016. Dissolved methane in the Beaufort Sea and the Arctic Ocean, 1992-2009; Sources and atmospheric flux. *Limnol. Ocean.* LO-15-0412.R3

Osburn, C.L. Boyd, T.J. Montgomery, M.T., Bianchi, T.S. Coffin, R.B., Paerl, H.W. 2016. Spatial Variations in Sediment Organic Matter Sources on the Alaskan Beaufort Sea Shelf. *Frontiers in Marine Science*, doi: 10.3389/fmars.2015.00127

Coffin, R. B., Osburn, C.L., Plummer, R.E., Rose, P.S., Grabowski, K.S. 2015. Deep sediment methane incorporation into shallow sediment carbon pools in Atwater Valley, Texas-Louisiana Shelf, Gulf of Mexico. *Energies* 8, 1561-1583; doi:10.3390/en8031561.

Leifer, I., Solomon, E. Schneider von Deimling, J., Coffin, R., Linke, P. 2015. Investigations of the Geologic, Water-Colum, and Atmospheric Phenomina of a Persisten North Sea Gas Blowout. *Mar. Petrol. Geol.* 68:806-823.

Rose, P.S., J.P. Smith, R.C. Aller, J.K. Chchran, R.L. Swanson, Coffin, R.B. 2015. Medically-Driven 131I as a Tool for Investigating the Fate of Wastewater Nitrogen in Aquatic Environments. *Environ. Sci. & Technol.* DOI:10.1021/acestgb00189.

Coffin, R.B., Hamdan, L.J., Smith, J.P., Rose, P.S., Plummer, R.E., Yoza, B., Pecher., I. Montgomery, M.T. 2014. Contribution of Vertical Methane Flux to Shallow Sediment Carbon Pools across Porangahau Ridge, New Zealand. *Energies* 7, 5332-5356; doi:10.3390/en7085332.

Smith, J. P., Coffin, R. B. 2014. Methane Flux and Authigenic Carbonate in Shallow Sediments Overlying Methane Hydrate Bearing Strata in Alaminos Canyon, Gulf of Mexico. *Energies* 7, 5332-5356; doi:10.3390/en7085332.

Treude, T., Krause, S., Schweers, J., Dale, A.W., Coffin, R.B., Hamdan, L.J. 2014. Sulfate reduction and methane oxidation activity below the sulphate-methane transition zone in Alaska Beaufort continental margin sediments: Implications on deep sulphur cycling. *GCA* 144:217-237.

Coffin, R.B., Hamdan, L. Smith, J.P., Plummer, R., Millholland, L. Larson, R. 2013. Spatial Variation in Shallow Sediment Methane Source and Cycling along the Alaskan Beaufort Sea. *Marine Petroleum and Geology* 10.1016/j.marpetgeo.2013.05.002.

Montgomery, M.T., Coffin, R.B., Boyd, T.J. Osburn, C.L. 2013. Incorporation and mineralization of TNT and other anthropogenic organics by natural microbial assemblages from a small, tropical estuary. *Environmental Pollution*, 174:257-264.

Boyd, T.J., Pound, M.J., Lohr, D., Coffin, R.B. 2013. Radiocarbon-depleted CO₂ evidence for fuel biodegradation at the Naval Air Station North Island (USA) fuel farm site. *Environmental Science. Processes & Impacts*; DOI:10.1039/c3em00008g.

Coffin, R.B. 2012. Special Issue – Natural Gas Hydrates 2011. Guest Editor. *Energies*. 318 pgs.

Hamdan, L. J., Coffin, R. B., Sikaroodi, M., Greinert, J., Treude, T., and Gillevet, P. M. (2012). Ocean currents shape the microbiome of Arctic marine sediments. *ISME J.* 7, 685–696. doi: 10.1038/ismej.2012.143

Montgomery, M.T., Coffin, R.B., Boyd, T.J., Smith, J.P., Plummer, R.E., Walker, S.E., and C.L. Osburn. 2011. Mineralization rates of 2,4,6-Trinitrotolene and bacterial production amongst natural microbial assemblages in coastal sediments. *Environmental Pollution* (published online 12 AUG 2011). DOI:10.1016/j.envpol.2011.07.018

Hamdan, LJ, Gillevet, PM, Pohlman, JW, Sikaroodi, M, Greinert, J, Coffin, RB. 2011. Diversity

and biogeochemical structuring of bacterial communities across the Porangahau ridge accretionary prism, New Zealand. *FEMS Microbiol. Ecol.*, 77: 518-532.

Joye, S. B., Leifer, I., MacDonald, I. R., Chanton, J. P., Meile, C. D., Teske, A. P., Kostka, J. E., Chistoserdova, L., Coffin, R., Hollander, D., Kastner, M., Montoya, J. P., Rehder, G., Solomon, E., Treude, T., and Villareal, T. A., 2011. Comment on "a Persistent Oxygen Anomaly Reveals the Fate of Spilled Methane in the Deep Gulf of Mexico, *Science* **332**:6033.

Schwalenberg, K., W. Wood, I. Pecher, L. Hamdan, S. Henrys, M. Jergen, and R. Coffin. 2010. Preliminary interpretation of CSEM, heatflow, seismic, and geochemical data for gas hydrate distribution across the Porangahau Ridge, New Zealand. *Marine Geology* 272:79-88.

Coffin, R., Rose, K., Greinert, J., and Wood, W. First Trans-Shelf-Slope Climate Study in the U.S. Beaufort Sea Completed. *FITI Newsletter*, March 2010.

Montgomery, M.T., Boyd, T.J., Osburn, C.L., Plummer, R.E., Masutani, S.M., and R.B. Coffin. 2009. Desalination technology waste streams: effect of pH and salinity on metabolism of marine microbial assemblages. *Desalination* 249:861-864.

Pohlman, J. W., M. Kaneko, V. Heuer, R. Coffin and M. Whiticar. 2009. Methane sources and production patterns in the northern Cascadia margin gas hydrate system. *Earth and Planetary Science Letters*. 287:504-512.

Coffin, R. and J. Greinert. 2009. Review: Developing Long Term International Collaboration on Methane Hydrate Research and Monitoring in the Arctic Region - International workshop at Royal NIOZ, The Netherlands *EOS* 90:240.

Coffin, R. B. and W. Wood. 2009. Naval Research Laboratory Contribution to Global Methane Hydrate Research. <http://www.netl.doe.gov/technologies/oil-as/FutureSupply/MethaneHydrates/>

Pohlman, J. W., J. E. Bauer, E. A. Canuel, K. S. Grabowski, D. L. Knies, C. S. Mitchell, M. J. Whiticar, and R. B. Coffin. 2009. Sources and fluxes of methane in gas hydrate cold-seep systems: Evidence from radiocarbon and stable isotope signatures. *Marine Chemistry* 115:102-109

Coffin, R. B., L. Hamdan, R. Plummer, J. Smith, J. Gardner, W. T. Wood. 2008. Analysis of Methane and Sulfate Flux in Methane Charged Sediments from the Mississippi Canyon, Gulf of Mexico. *Marine and Petroleum Geology* doi:10.1016/j.marpetgeo.2008.01.014.

Wood, W. T., P. Hart, D. Hutchinson, N. Dutta, F. Snyder, R. B. Coffin, and J. F. Gettrust. 2008. Gas and Gas Hydrate Distribution Around Seafloor Seeps in Mississippi Canyon, Northern Gulf

of Mexico, using Multi-Resolution Seismic Imagery. *Marine and Petroleum Geology*
doi:10.1016/j.marpetgeo.2008.01.014

Coffin, R.B., Pohlman, J.W., Grabowski, K.S., Knies, D.L., Plummer, R.E., Magee, R.W., Boyd, T.J. 2008. Radiocarbon and stable carbon isotope analysis to confirm petroleum natural attenuation in the vadose zone. *Environmental Forensics* 9:75-84

Hamdan, L.J., Gillevet, PM, Sikaroodi, M, Pohlman, JW, Plummer, RE, Coffin, RB. 2008. Microbial diversity of sediments associated with methane gas and hydrate along the mid-Chilean Margin. *FEMS Microbiol Ecol* 65:15-30

Hoch, M. P., K. S. Dillon, R. B. Coffin and L. A. Cifuentes. 2008. Sensitivity of bacterioplankton nitrogen metabolism to eutrophication in sub-tropical coastal waters of Key West, Florida. *Marine Pollution Bulletin* 56 (5), pp. 913-926.

Pohlman, J.W., Bauer, J.E., Osburn, C.L., Coffin, R.B., 2007. "Carbon Isotope Evidence (C-13 and C-14) for Fossil Methane-Derived Dissolved Organic Carbon from Gas Hydrate Bearing Cold Seeps", *Geochimica Et Cosmochimica Acta* 71:798-798.

Coffin, R B., J. W. Pohlman, J. Gardner, R. Downer, W. Wood, L. Hamdan, S. Walker, R. Plummer J. Gettrust and, J. Diaz 2007. Methane Hydrate Exploration on the Mid Chilean Coast: A Geochemical and Geophysical Survey. *Am. Chem. Soc., Div. Pet. Chem.* Doi:10.1016/j.petrol.2006.01.013

Lu, H., Y.-T. Seo, J.-W. Lee, I. Moudrakovski, J. A. Ripmeester, N. R. Chapman, R. B. Coffin and J. P. Pohlman. 2007. Complex gas hydrate from the Cascadia margin. *Nature*. 445:303-306.

Boyd, T. J., C. L. Osburn. K. J. Johnson, K. B. Birgl and R. B. Coffin. 2006 Compound-Specific Isotope Analysis Coupled with Multivariate Statistics to Source-Apportion Hydrocarbon Mixtures. *Environ. Sci. Technol.* 40:1916-1924.

Hoch, M. P., R. A., Snyder, W. H. Jeffrey, K. S. Dillon, and R. B. Coffin. 2006. Expression of glutamine synthetase and glutamate dehydrogenase by marine bacterioplankton: Assay optimizations and efficacy for assessing nitrogen to carbon metabolic balance in situ. *Limnol. Oceanogr. Methods* 4:308-328.

Pohlman, J. W., E. Canuel, N. Chapman, G. Spence, M. Whiticar, and R. Coffin. 2005. The origin of thermogenic gas hydrates on the northern Cascadia Margin as inferred from isotopic ($^{13}\text{C}/^{12}\text{C}$ and D/H) and molecular composition of hydrate and vent gas. *Org. Geochemistry*. 36:703-716.

O.Sullivan, DW, Neale, PJ, Coffin, RB, Boyd TJ, and Osburn CL. 2005. Photochemical production of hydrogen peroxide and methylhydroperoxide in coastal waters. *Marine Chemistry*.97:14-33.

Chapman, R., J. Pohlman, R. Coffin, J. Chanton and L. Lapham. 2004. Thermogenic gas hydrates in the Northern Cascadia Margin. *EOS*. 85:361.

Coffin, R.B., M.T. Montgomery, T.J. Boyd and S.M. Masutani. 2004. Influence of Ocean CO₂ Sequestration on Bacterial Production. *Energy* 29:1511-1520.

Yousuf, M. S.B. Qadri, D.L. Knies, K.S. Grabowski, R.B. Coffin, and J.W. Pohlman. 2004. Novel Results on Structural Investigations of Natural Minerals of Clathrate Hydrates. *Appl. Phys. A* 78:925-939.

Grabowski, K. S. D.L. Knies, S.J. Tumey, J.W. Pohlman, C.S. Mitchell, and R.B. Coffin. 2004. Carbon Pool Analysis of Methane Hydrate Regions in the Sea Floor by Accelerator Mass Spectrometry. *Nucl. Instr. Meth. B* 223-224:435-440.

Knies, D.S., K.S. Grabowski, C.A. Kennedy, C. Cetina, G.K. Hubler, S.J. Tumey, A.C. Mignerey, J.W. Pohlman, R.B. Coffin, and M. Getaneh, 2004. Status of the NRL TEAMS Facility. *Nucl. Instr. Meth. B* 223-224:72-77.

Snyder, F., Dutta, N., Hutchinson, D., Hart, P., Lee, M.Y., Dugan, B., Ruppel, C., Wood, W., Coffin, R., Evans, R., Jones, E. 2004. Seismic analysis and characterization of gas hydrates in the northern deepwater Gulf of Mexico. *Search and Discovery Article #40137*.

Tomaru, H., Matsumoto, R., Coffin, R., Pohlman, J., and Spence, G., 2003. Geochemical Clues for Seafloor and Subsurface Gas Hydrate Linkage in Cascadia, Canada. *Geochimica et Cosmochimica Acta* **67**:485-485.

Osburn, C. L., Coffin, R. B., and Boyd, T. J. 2002. Observed variation in the photoreactivity of CDOM from freshwater, estuarine, and marine sources in the Chesapeake Bay. *Eos Transactions, American Geophysical Union*, Vol. 83, No. 4, OS31B-09.

Montgomery, M. T., B. J. Spargo., J. G. Mueller, R. B. Coffin, D. C. Smith, T. J. Boyd. 2002. Bacterial production stimulated across the zone of influence of a ground water circulation well in a BTEX-contaminated aquifer. *Ground Water Monitoring and Remediation* 22:144-150.

Coffin, R. B., Paul H. Miyares, Cheryl A. Kelley, Luis A. Cifuentes and C. Michael Reynolds. 2001. $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ Isotope Analysis of TNT: Two Dimensional Source Identification. *Environmental Toxicology and Chemistry*. 20:2676-2680.

Pohlman, J. W., Coffin, R. B., Mitchell, C. S., Montgomery, M. T., Spargo, B. J., Steele, J. K., and T. J. Boyd. 2001. Transport, deposition, and biodegradation of particle bound polycyclic aromatic hydrocarbons in a tidal basin of an industrial watershed. *Environ. Monitor. Assess.* 75:155-167.

Mueller, J. G., M. T. Montgomery, B. J. Spargo, R. B. Coffin and C. A. Kelley. 2001. Effects of oxygenation on hydrocarbon biodegradation in a hypoxic environment. *Bioremed. Journal.* 5:145-157.

Boyd, T. J., Montgomery, M. T., Spargo, B. J., Smith, D. C., Coffin, R. B., Kelley, C. A., and Mueller, J. G. 2001 Effects of oxygenation on hydrocarbon biodegradation in a hypoxic environment *Biorem. J.* 5: 145-157.

Booth, M.G, L. Hutchinson, M. Brumsted, P. Aas, R. B. Coffin, R. C. Downer, Jr, C. A. Kelley, M. M. Lyons, J. D. Pakulski, S. L. Holder Sandvik, W. H. Jeffrey, and R. V. Miller. 2001. Quantification of RecA as an Indicator of Repair Potential in Marine Bacterioplankton Communities of Antarctica. *Aquatic Microbial Ecology.* 24:51-59

Grabowski, K. S., D. L. Knies, T. M. DeTurck, D. J. Treacy Jr., J. W. Pohlman, R. B. Coffin, G. K. Hubler. 2000. A report on the Naval Research Laboratory AMS facility. *Nucl. Instr. Meth. B: Beam Interactions with Materials and Atoms* 172:34-39.

Pohlman, J. P., D. L. Knies, K. S. Grabowski, T. M. DeTurck, D. J. Treacy, and R. B. Coffin. 2000. Sample Distillation/Graphitization Apparatus for Carbon Pool Analysis by Accelerator Mass Spectrometry (AMS) *Nucl. Instr. Meth. B: Beam Interactions with Materials and Atoms* 172:428-433.

Holder Sandvik, S. L., P. Bilski, J. D. Pakulski, C. F. Chignell, and R. B. Coffin. 2000. Photogeneration of singlet molecular oxygen and free radicals in dissolved organic matter isolated from along salinity transects in the Mississippi and Atchafalaya River plumes. *Mar. Chem.* 69:139-152.

Coffin, R. B., K.S. Grabowski and J.P. Chanton, 2000. "The Role of Methane Hydrate in Ocean Carbon Chemistry and Biogeochemical Cycling", pp. 77-90, in *Natural Gas Hydrate in Oceanic and Permafrost Environments*, M.D. Max ed. (Kluwer Academic Publishers, Boston, 2000) 414p.

Coffin, R. B. and L. A. Cifuentes. 1999. Analysis of microbial carbon cycling with stable isotope analysis in the Perdido Estuary, FL. *Estuaries.* 22:997-1006.

Cherrier, J., J. E. Bauer, E. R. M. Druffel, R. B. Coffin, J. P. Chanton. 1999. Radiocarbon in Marine Bacteria: Evidence for the Age of Assimilated Organic Matter. *Limnology and Oceanography* 44(3):730-736.

Kelley, C. A., J. D. Pakulski, S. L. H. Sandvik, R. B. Coffin, R. C. Downer, P. Aas, M. M. Lyons. And W. H. Jeffrey. 1999. Relations between bacterial carbon pools and productivities in the Gerlache Strait, Antarctica, during early austral spring. *Microb. Ecol.* 38:296-305.

Jørgensen, N.O.G., N. Kroer, R. B. Coffin, and M. P. Hoch. 1999. Relations between bacterial nitrogen metabolism and growth efficiency in an estuarine and an open-water ecosystem. *Aq. Microb. Ecol.* 18:247-261.

Kelley, C. A., R. B. Coffin, and L. A. Cifuentes. 1998. Stable isotope evidence for alternate carbon sources in the Gulf of Mexico. *Limnol. Oceanogr.* 43:1962-1969.

Kelley, C.A., Coffin, R.B. Mueller, J.G. 1998. Stable Isotope Analyses – An Innovative Technique to Monitor Biodegradation of Petroleum Hydrocarbons. *Geotechnical News* 16:20-31.

Pelz, O., L. A. Cifuentes, C. A. Kelley, B. A. Trust, and R. B. Coffin. 1998. Tracing the assimilation of organic compounds using $\delta^{13}\text{C}$ analysis of unique amino acids in the bacterial cell wall. *FEMS Microbial Ecology* 25:229-240.

Hammer, B.T., C. A. Kelley, R. B. Coffin, L. A. Cifuentes, J. Mueller. 1998. $\delta^{13}\text{C}$ values of polycyclic aromatic hydrocarbon collected from two creosote-contaminated sites. *Chem. Geol.* 152:43-59.

Kelley, C. A., B. A. Trust and R. B. Coffin. 1997. Concentrations and stable isotope values of BTEX in gasoline-contaminated groundwater. *Environ. Sci. Technol.* 31:2469-2472.

Coffin, R. B., Montgomery, M. T., Kelley, C. A., and Cifuentes, L. A., 1997. Assessment of Nutrient-Contaminant Carbon Ratios for Enhancing In Situ Bioremediation, **4**:297.

Coffin, R.B., L. A. Cifuentes and P. H. Pritchard. 1997. Effect of remedial nitrogen applications on algae and heterotrophic organisms on oil contaminated beaches in Prince William Sound, AK. *Mar. Environ. Res.* 1:27-39.

Coffin, R. B. and J. P. Connolly. 1997. Bacteria and heterotrophic microflagellate production in the Santa Rosa Sound, Florida. *Hydrobiologia.* 353:53-61.

Pelz, O., C. Hesse, M. Tesar, R. B. Coffin, and W.-R. Abraham. 1997. Development of methods to measure carbon isotopic ratios of bacterial biomarkers in the environment. *Isotopes Environ. Health Stud.* 33:131-144

Jeffrey, W. H., R. J. Pledger, P. Aas, S. Hager, R. B. Coffin, R. Von Haven, and D. L. Mitchell. 1996. Diel and depth profiles of DNA photodamage in bacterioplankton exposed to ambient solar ultraviolet

radiation. *Mar. Ecol. Prog. Ser.* 137:283-291.

Pakulski, J. D., R. Coffin, C. Kelley, S. Holder, W. Jeffrey, P. Aas, M. Lyons and R. Downer. 1996. Iron stimulation of Antarctic Marine Bacteria: Preliminary Results. *Nature* 383:133-134.

Cifuentes, L. A., R. B. Coffin, L. Solorzano, W. Cardenas, J. Espinoza and R. Twilley. 1996. Isotopic and elemental variations of carbon and nitrogen in a mangrove estuary. *Estuar. Coastal. Shelf Sci.* 43:781-790.

Jeffrey, W. H., P. Aas, M. M. Lyons, R. B. Coffin, R. J. Pledger, D. L. Mitchell. 1996. Ambient solar radiation-induced photodamage in marine bacterioplankton. *Photochem. Photobiol.* 64:419-427.

Hoch, M. P., R. A. Snyder, L. A. Cifuentes and R. B. Coffin. 1996. Stable isotope dynamics of nitrogen recycled during interactions between marine bacteria and protists. *Mar. Ecol. Prog. Ser.* 132:229-239.

Jeffrey, W. H., R. Von Haven, M. P. Hoch. and R. B. Coffin. 1996. Bacterioplankton RNA, DNA, protein content and relationships to rates of thymidine and leucine incorporation. *Aquat. Microb. Ecol.* 10:87-95.

Mueller, J.G. Lakhwala, F. Lantz, S.E. Heard, C., Klingel, E.J., W.B. Langley, Brouman, M.D., Coffin, R.B., Trust, B. Kelley, C., Cifuentes, L.A., Montgomery, M.T., Boyd, T.A., Schultz, W.W. 1995. Use of Groundwater Circulation (UVB) Technology and Integrated Bioreactors for Chemical Containment and *in-situ* Bioremediation of Subsurface Environments Contaminated by Coal Tar Creosote: Full-scale Field Validation. *Land Contamination and Reclamation* 3:11-16.

Connolly, J. P. and R. B. Coffin. 1995. A model of carbon cycling in the planktonic food web. *Journal Environmental Engineering.* 121:682-690.

Lopez-Veneroni, D., L. A. Cifuentes, and R. B. Coffin. 1995. A isotopically-constrained model for denitrification in the continental shelf of the NW Gulf of Mexico. In: *Nutrient-Enhanced Coastal Ocean Productivity, Proceedings of Synthesis Workshop/NOAA, Program Management Committee*: Atwood, DK, Graham, WF, Grimes, CB.

Kroer, N., N. O. G. Jorgensen and R. B. Coffin. 1994. Utilization of dissolved nitrogen by heterotrophic bacterioplankton: A cross-ecosystem comparison. *Appl. Environ. Microbiol.* 60:4116-4123.

Jorgensen, N. O. G., N. Kroer, R. B. Coffin. 1994. Utilization of dissolved nitrogen by heterotrophic bacterioplankton: Effect of substrate C/N ratio. *Appl. Environ. Microbiol.* 60:124-4113.

Karentz, D., M. Bothwell, R. Coffin, A. Hanson, G. Herndl, S. Kilham, M. Lesser, M. Lindell, R.

- Moeller, D. Morris, P. Neale, R. Sanders, S. Weiler and R. Wetzel. 1994. Impact of UVB radiation on pelagic freshwater ecosystems: Report of working group on bacteria and phytoplankton. *Archiv Fhr Hydrobiologia*, 10.
- Kirk, J.T.O., B. R. Hargreaves, D. P. Morris, R. B. Coffin, B. David, D. Frerickson, D. Karentz, D. Lean, M. Lesser, S. Madronich, J. H. Morrow, N. Nelson, N. Scully. 1994. Measurement of UV-B radiation in freshwater ecosystems. *Archiv Fhr Hydrobiologia*.
- Coffin, R. B., L. A. Cifuentes, and P. M. Elderidge. 1994. The use of stable carbon isotopes to study microbial processes in estuaries. In: Lajtha, K. and R. Michener, eds., Stable Isotopes in Ecology. Pp. 222-240.
- Kroer, N., R.B. Coffin, and N.O.G. Jorgensen. 1994. Comparison of microbial trophic interactions in aquatic microcosms designed for the testing of introduced microorganisms. *Environ. Tox. and Chem.* 13:247-257.
- Coffin, R. B., J. P. Connolly and P. Harris. 1993. Availability of dissolved organic carbon to bacterioplankton examined by oxygen utilization. *Mar. Ecol. Prog. Ser.* 101:9-22.
- Coffin, R. B. and L. A. Cifuentes. 1993. Approaches for measuring stable carbon and nitrogen isotopes in bacteria. In: P.F. Kemp, B. F. Sherr, E. B. Sherr, and J. J. Cole, eds. Current Methods in Aquatic Microbial Ecology.
- Jorgensen, N. O.G., N. Kroer, R. B. Coffin, and C. Lee. 1993. Dissolved free amino acids, combined amino acids, and DNA as sources of carbon and nitrogen to marine bacteria. *Mar. Ecol. Prog. Ser.* 98:135-148.
- Connolly, J. P., R. B. Coffin and L. R. Landeck. 1992. Modeling carbon utilization in natural water systems. In: C. J. Hurst ed. Wiley.
- Kroer, N. and R. B. Coffin, 1992. Microbial trophic interactions in aquatic microcosms designed for testing genetically engineered microorganisms: A field comparison. *Microbial Ecology* 23:143-157.
- Kroer, N. and R. B. Coffin. 1992. Use of microbial trophodynamic in field calibration of site specific aquatic microcosms. *Appl. Environ. Microbiol.* 23:143-157.
- Coffin, R. B., D. Velinsky, R. Devereux, Wm. Allen Price and L. Cifuentes. 1990. Stable carbon isotope analysis of nucleic acids to trace sources of dissolved substrate used by estuarine bacteria. *Appl. Environ. Microbiol.* 56:2012-2020.
- Clark, J. R., R. B. Coffin, J. M. Macauley, J. R. Hoff. 1990. Results of environmental monitoring in

Prince William Sound following fertilizer additions to enhance oil degradation. Air & Waste Management Association, 90-124.

Coffin, R. B., B. Fry, B. J. Peterson, and R. T. Wright. 1989. Carbon isotopic compositions of estuarine bacteria. *Limnol. Oceanogr.* 34:1305-1310.

Coffin, R. B. 1989. Bacterial uptake of peptides and proteins in the Delaware Estuary. *Limnol. Oceanogr.* 34:531-542.

Coffin, R. B. and J. H. Sharp. 1987. Microbial trophodynamics in the Delaware Estuary. *Mar. Ecol. Prog. Ser.* 41:253-266.

Wright, R. T., M. Lebo, and R. B. Coffin. 1987. Dynamics of planktonic bacteria and heterotrophic microflagellates in the Parker Estuary, Northern Massachusetts. *Cont. Shelf. Res.*

Sharp, J. H., L. A. Cifuentes, R. B. Coffin, J. R. Pennock, and K.-C. Wong. 1986. The influence of river variability on the circulation, chemistry and microbiology of the Delaware Estuary. *Estuaries* 9:261-269.

Wright, R. T. and R. B. Coffin. 1984. Ecological significance of biomass and activity measurements. Factors affecting bacterioplankton density and productivity in salt marsh estuaries. In: *Current Perspectives in Microbial Ecology*.

Wright, R. T. and R. B. Coffin. 1984. Measuring microzooplankton grazing on planktonic marine bacteria by its impact on bacterial production. *Microb. Ecol.* 10:137-149.

Wright, R. T. and R. B. Coffin. 1983. Planktonic bacteria in estuaries and coastal waters of northern Massachusetts: spatial and temporal distribution. *Mar. Ecol. Prog. Ser.* 11:205-216.

Wright, R. T., R. B. Coffin, C. P. Ersing and D. Pearson. 1982. Field and laboratory measurements of bivalve filtration of natural marine bacterioplankton. *Limnol. Oceanogr.* 27:91-98.

Conference Proceedings

Greene, C. A., P. S. Wilson, R. B. Coffin. 2011. Acoustic determination of methane hydrate dissociation pressures. *Proceeding of the 7th International Conference on Gas Hydrates* Edinburgh, Scotland, United Kingdom, July 17-21, 2011.

Pohlman, J. W., M. Riedel, I. Novosel, J. E. Bauer, E. A. Canuel, C. Paull, P. B. Coffin, K. S. Grabowski, D. L. Knies, R. D. Hyndman, G. D. Spence. 2011. Evidence and biogeochemical implications for glacially-derived sediments in an active margin cold seep. *Proceeding of the 7th International Conference on Gas Hydrates* Edinburgh, Scotland, United Kingdom, July 17-21, 2011

Smith, J. P., D. J. Brabander, J. R. Besancon, L. C. Millholland, M. J. Gregory, and R. B. Coffin. 2009. Mineralogy, Bacterial Species Diversity, and Bioavailable Trace-Element Loading on the Silt/Clay Fraction of Surficial Sands from Iraq and Kuwait. Scientific Programme, The AIPEA 14th International Clay Conference, Castellana Marina, Italy: Abstract HE4.Tue.L2.

Greinert, J. and R. Coffin. 2009. Developing Long Term International Collaboration on Methane Hydrate Research and Monitoring in the Arctic Region. Feb. 2009 Texel, Netherlands.
(http://www.nioz.nl/nioz_nl/)

Boyd, T. J., Osburn, C. L., Coffin, R. B., Johnson, K. J., and Jarvela, S., 2005. "CSIA coupled with multivariate statistics for source-apportioning hydrocarbons", in *8th International In Situ and On-Site Bioremediation Symposium, held in Baltimore, MD, 6 June 2005 through 9 June 2005*, **3** 1144-1152.

Coffin, R. B., Grabowski, K. S., Knies, D. L., Boyd, T. J., Pohlman, J. W., and Mitchell, C. S., 2005. Multiple carbon isotope ratios confirm and elucidate petroleum natural attenuation, in *8th International In Situ and On-Site Bioremediation Symposium, held in Baltimore, MD, 6 June 2005 through 9 June 2005*, **3** 1106-1112.

Montgomery, M.T., Boyd, T.J., Coffin, R.B., Pohlman, J.W., Beeson, K.E., Spargo, B.J., Osburn, C.L., Tsakumis, J.K., Smith, D.C. 2005. Relationship Between PAH Biodegradation and Transport in Estuarine Sediments. in: R.F. Olfenbittel and P.J. White (Eds.), *Remediation of Contaminated Sediments—2005: Finding Achievable Risk Reduction Solutions*. Proceedings of the Third International Conference on Remediation of Contaminated Sediments (New Orleans, Louisiana; Jan 24–27, 2005). ISBN 1-57477-150-7, published by Battelle Press, Columbus, OH, www.battelle.org/bookstore.

Gettrust, J. F., Wood, W. T., Coffin, R., Pohlman, J., and Pandey, R., 2005. "Coordinated, High-Resolution Studies of Hydrated Sediments", in *OTC 05, held in Houston, TX, 02-05 MAY, 2005*, edited by Technip., Richardson, TX: Offshore Technology Conference.

Coffin, R., A. Andrushaitis, T. Boyd, J. Pohlman, S. Walker, K. Graboski and D. Knies. June 15-17, 2004. Evaluation of Organic Compound Sources and Natural Attenuation, Liepaja Latvia. USA-Baltic International Symposium. CD Written. 1C Sediment Contamination I.

Boyd, T. and R. Coffin. June 15-17, 2004. Use of Stable Carbon Isotopes and Multivariate Statistics to Source Apportion Fuel Hydrocarbons. USA-Baltic International Symposium. CD Written. 1C Sediment Contamination I.

Tomaru, H., R. Matsumoto, R. Coffin, J. Pohlman, and G. Spence. 2003. Geochemical clues for seafloor and subsurface gas hydrate linkage in Cascadia, Canada. Goldschmidt Conference.

Coffin, R. B., Montgomery, M. T., Boyd, T. J., and S. M. Masutani. 2002. Influence of Ocean CO₂ Sequestration on Bacterial Elemental Cycling. Proceedings from the Sixth International Conference on Greenhouse Gas Control Technologies.

Boyd, T.J., Montgomery, M.T., Spargo, B.J., Coffin R. B., Mueller, J. G., Steele, J. K. Pohlman, J. W. Demetriades-Shah, T., Slenska, M. 2000. Source reduction effect on creosote PAH bioremediation in marsh sediments. Second International Conference on Remediation of Chlorinated and Recalcitrant Compounds; Monterey, CA, USA; 22-25 May 2000 pp. 189-195.

Coffin, R. B., Grabowski, K. S., Linton, J. A., Thieu, V., Halpern, Y., Montano, P. A., and Doctor, R. D., 2000. Variation in methane hydrate structure and composition, in *32nd Annual Offshore Technology Conference - OTC 2000, held in Houston, TX, 1 May 2000 through 4 May 2000*, Offshore Technol Conf, **1** 609-615.

Smith, D. C., T. J. Boyd, B. J. Spargo, R. B. Coffin, and J. K. Steele. 1999. Bacterial assemblage adaptation in PAH-impacted ecosystems. Battelle Memorial Institute International In Situ and On-site Bioreclamation Symposium Proceedings 5.

Trust, B. A., J. G. Mueller, R. B. Coffin and L. A. Cifuentes. 1995. The biodegradation of fluoranthene as monitored using stable carbon isotopes. Battelle In Situ and On-Site Bioreclamation Program Publication, San Diego CA, April 24-27, 1995.

Reports

Crutchley, G.J., Black, J., Field, B.D., O'Brien, G., Stagpoole, V.M., Mountjoy, J.J, Bland, K.J., Henrys, S.A. Pecher, I.A., Strogon, D.P., Kellett, R.L., Coffin, R.B. Neil, H.L., Rose, P.S. 2016. Petroelum Prospecitivity Screening Report of the Offshore Northern East Coast Basin. GNS Science Consultancy Report 2015/225, January 2016.

Coffin, R.B., Rose, P., Yoza, B., Boyd, R., Pecher, I., Crutchley, G., Mountjoy, J., 2015. TAN1508 GEOCHEMISTRY OVERVIEW – Methane Gas Assessment and Hydrate Prediction: Seismic and Geochemical Interpretation. NRL Letter Report:3905

Coffin, R.B., Rose, P.R., Yosa, B., Millholland, L. 2013. Geochemical evaluation of climate change on the Chatham Rise. US Naval Research Laboratory Technical Memorandum, NRL/MR/6110—13-9454.

Rose, P.S., Millholland, L.C., Plummer, R.E. Reed, A., Montgomery, M.T., Boyd, T.J., Coffin,

R.B. 2013. Natural Gas at Seep Site on the UK Continental Shelf, North Sea. NRL/MR/6110—13-9452.

Coffin, R. B., L. H. Hamdan, J. Smith, R. Plummer, L. Millholland, R. Larson, W. Wood. 2010. Arctic Ocean Methane Hydrate Exploration: Energy and Climate Change. US Naval Research Laboratory Technical Memorandum, NRL/MR/6110—10-9330

Montgomery, M.T., Coffin, R.B., Boyd, T.J., Plummer, R.E., Hamdan, L.J., Smith, J.P., Walker, S.E., Dittel, A., Masutani, S.M., Li, Q.X., and C.L. Osburn. 2010. Bacterial production and contaminant mineralization in sediments of the Ala Wai Canal, Oahu, Hawai'i. US Naval Research Laboratory Technical Memorandum, NRL/MR/6110—9212

Coffin, RB, Hamdan, LJ, Smith, J, Rose, K, Downer, RC, Edsal, D. Gardner, J. Hagen, R., Wood, WT. 2008. Geochemical evaluation of deep sediment hydrate deposits on Alaminos Canyon, Block 818, Texas-Louisiana Shelf. NRL/MR/6110-11-9294

Coffin, R. B., Kvamme, B., Uchida, T., Masutani, S., and Narita, H., 2008. 6Th International Methane Hydrate Research and Development Workshop. NRL/MR/6110-09-9143; MR-9143.

Coffin, RB, Hamdan, LJ, Smith, J, Rose, K, Downer, RC, Edsal, D. Gardner, J. Hagen, R., Wood, WT. 2008. Geochemical evaluation of deep sediment hydrate deposits on Alaminos Canyon, Block 818, Texas-Louisiana Shelf. NRL/MR/6110-09

Coffin, R., L. Hamdan, J. Pohlman, W. Wood, I. Pecher, S. Henrys, J. Greinert, K. Faure. 2007. Geochemical characterization of concentrated gas hydrate deposits on the Hikurangi Margin, New Zealand: Preliminary Geochemical Cruise Report. NRL/MR/6110—08-9085.

Boswell, R., Amato, R., Coffin, R., Collet, T., Dellagiarino, G., Fisk, R., Gettrust, J., Haq, B., Hutchinson, D., Pugliese, K., Ray, P., and Rose, K. 2007. "An Interagency Roadmap for Gas Hydrates Research and Development FY2007-FY2011," by the Technical Coordination Team of the National Methane Hydrate R&D Program. USA Department of Energy, April 2007. Download from: http://www.fossil.energy.gov/programs/oilgas/hydrates/Interagency_5-year_Plan_Apr_2007rev.pdf

Walker, S. W., Osburn, C. L., Boyd, T. J., Hamdan, L. J., Coffin, R. B., Smith, J. P., Li, Q. X., Hennessee, C., Monteil, F., Hawari, J., and M. T. Montgomery. 2006. Mineralization of 2,4,6-trinitrotoluene in coastal waters and sediments. US Naval Research Laboratory Formal Report, NRL/FR/6114-06-10,135.

Coffin, R. B. 2006. DARPA/TTO Seedling Study: Engineering the Future of Military Logistic Fuels 2020 and Beyond: Feedstock Workshop. 14-15 July 2005. US Naval Research Laboratory

Technical Memorandum, NRL/MR/6114—06-9002

Coffin, R. B., Osburn, C. L., and M. T. Montgomery. 2006. Impact of a marine desalination strategy using hydrate formation on marine bacterial assemblages and water quality. US Naval Research Laboratory Technical Memorandum, NRL/MR/6110—06-9005

Coffin, R. B. and R. Chapman. 2006. 4th International Workshop on Methane Hydrate Research and Development. Victoria, BC, Canada, May 9-11, 2005. US Naval Research Laboratory Technical Memorandum, NRL/MR/6110—06-9007

Coffin, R. B., J. Gardner, J. Pohlman, R. Downer and W. Wood. 2006. Methane Hydrate Exploration, Atwater Valley, Texas-Louisiana Shelf: Geophysical and Geochemical Profiles. US Naval Research Laboratory Technical Memorandum, NRL/MR/6110—06-9002

Coffin, R. B., J. Diaz, Gardner, J. and J. Sellanes. 2006. Gas Hydrate Exploration, Mid Chilean Coast; Geochemical-Geophysical Survey. US Naval Research Laboratory Technical Memorandum, NRL/MR/6110—06-9006

Walker, S. W., Osburn, C. L., Boyd, T. J., Hamdan, L. J., Coffin, R. B., Smith, J. P., Li, Q. X., Hennessee, C., Monteil, F., Hawari, J., and M. T. Montgomery. 2006. Mineralization of 2,4,6-trinitrotoluene in coastal waters and sediments. US Naval Research Laboratory Formal Report, NRL/FR/6114—06-10,135.

Boyd, T.J., Montgomery, M.T., Coffin, R.B., 2005. Stable Carbon Isotope Ratios and Biodegradation Rates of BTEX Compounds at the Tranguch Gasoline Site, Hazleton, Pennsylvania. NRL/FR/6114-05-10074; FR-10074.

Boyd, T.J., Coffin, R.B., 2004. Isotope Ratio Mass Spectrometry Data Processing Software: Multivariate Statistical Methods for Hydrocarbon Source Identification and Comparison.", NRL-MR-8774; NRL/MR/6110-04-8774.

Pohlman, J. W., Grabowski, K. S., Knies, D. L., Plummer, R. E., Mitchell, C. S., and Coffin, R. B. 2004. Report on Radiocarbon Analysis of Surface Sediments from the Fore-Arc Basin of Nankai Trough. NRL/MR/6110--04-8775.

Coffin, R. B., Boyd, T. J., Knies, D. L., Grabowski, K. S., Pohlman, J. W., and Mitchell, C. S., 2004. Natural CO₂ Flow from the Loihi Vent: Impact on Microbial Production and Fate of the CO₂. NRL/MR/6110-04-8766; DE-A126-99FT4062.

Spence, G., Hoehne, J., Coffin, R. B., Hyndman, R., and MacDonald, R., 2003. VENTFLUX2: Single Channel Seismics, Piston Coring and CTD Casts Associated with Gas Hydrates Offshore

Vancouver Island: Report of Cruise PGC01-003 C.C.G. Vessel John P. Tully 23 July-12 August 2001, Volume 1: Operations. NRL-MR-8648; NRL/MR/6110-03-8648.

Wood, W. T., Grabowski, K., Coffin, R. B., Lindwall, D. A., Theophanis, S., and Gettrust, J. F., 2003. Methane Hydrates DTAGS and Coring Cruise off the Carolina Coast. NRL-MR-8296; NRL/MR/7430-03-8296.

Boyd, T. J., Montgomery, M. T., and R. B. Coffin. 2003. Stable carbon isotope ratios and biodegradation rates of BTEX compounds at the Tranguch Gasoline site, Hazleton, PA. NRL Technical Report NRL/FR/6114--03.

Coffin, R. B., Masutani, S. M., Uchida, T., and Kvamme, B., 2003. Fiery Ice from the Seas. 2ND International Workshop on Methane Hydrate R&D 29-31 October 2002, Washington Plaza Hotel, Washington, DC. NRL/MR/6114-03-8696.

Coffin, R. B., Lamontagne, R., Rose-Pehrsson, S., Grabowski, K. S., Knies, D. L., Qadri, S. L. B., Yesinowski, J. P., Pohlman, J. W., Yousuf, M., and Linton, J. A., 2002. Ocean Floor Methane Gas Hydrate Exploration. NRL Review 2002:112-115.

Boyd, T. J., Montgomery, M. T., Coffin, R. B., Reatherford, S. R., and Badger, C. V., 2002. Characterization of Intrinsic PAH Biodegradation in Groundwater during Tidal Cycles at the Naval Station Norfolk: Interim Report. NRL-FR-10029; NRL/FR/6110-02-10029.

Masutani, S. M. and R. B. Coffin. 2002. Fiery Ice From the Seas; The First Workshop of the International Committee on Methane Hydrates. NRL Technical Report NRL/MR/6110--02-8646.

Coffin, R. B. 2002. Field Evaluation of Sediment Structure and Content, Relative to Associated Hydrates. NRL Technical Report NRL Technical Report NRL/MR/6110--03-8647.

Spence, G. and R. B. Coffin. 2002. VENTFLUX 2: Single Channel Seismics, Piston Coring and CTD Casts Associated with Gas Hydrates Offshore Vancouver Island. NRL Technical Report NRL Technical Report NRL/MR/6110--03-8648.

Pohlman, J.W., Mitchell, C.S., Miller, C.M., and Coffin, R.B. 2001. Anacostia Wet Weather Receiving Water Monitoring Survey: Event 1. NRL/MR/6115-01-8500.

Pohlman, J.W., Mitchell, C.S., Miller, C.M., Coffin, R.B. 2001. Anacostia Wet Weather Receiving Water Monitoring Survey: Event 3. NRL/MR/6115-01-8502.

Pohlman, J. W., J. F. Bratton, and R. B. Coffin. 2000. Porewater methane geochemistry of Marion-Durfresne cores MD99-2205 and -2206. In: Initial Report on IMAGES V Cruises of the

Marion-Dufresne. USGC Open-file report 00-306.

Coffin, R.B., Pohlman, J.W., and Mitchell, C.S., 1998. Fate and Transportation of PAH and Metal Contaminants in the Anacostia River Tidal Region. NRL/MR/6110-99-8327.

Coffin, R.B., Orr, M., Carey, E., Cifuentes, L.A., and Pohlman, J. 1998. Contaminant Distribution and Fate in Anacostia River Sediments: Particulate Transport Survey. NRL/MR/6115-98-8139.

Spargo, B. J., Montgomery, M. T., Boyd, T. J., Coffin, R. B., Cifuentes, L. A., Mueller, J. G., and Schultz, W. W., 1998. In Situ Bioremediation and Efficacy Monitoring SERDP Project CU-030. NRL/MR/6115-98-8179.

Spargo, B. J., Coffin, R. B., Montgomery, M., Jones-Meehan, J., and Kelley, C., 1997. Exploiting Microbiology to Enhance Biodegradation of Hydrocarbon-Contaminated Environments. NRL Review 1997:74-77.

Coffin, R. B., M. T. Montgomery, C. A. Kelley, B. A. Trust, J. G. Mueller, and L. A. Cifuentes. 1996. Analysis of Carbon and Nutrient Concentrations for Optimization of Groundwater Circulation Systems used in Bioremediation of Organic Contaminants. NRL/PU/6115 - 96-317.

Recent Presentations (last five years)

Coffin, R.B, Rose, P., Pecher, I., Crutchley, G., Mountjoy, J. 2019. INVITED. Geochemical Assessment of Coastal Gas Hydrate Loading off the Coast of New Zealand. Adapted from oral presentation given at AAPG Asia Pacific Region Geosciences Technology Workshop, Gas Hydrates – From Potential Geohazard to Carbon-Efficient Fuel? Auckland, New Zealand, April 15-17, 2019; DOI:10.1306/30622Coffin2019.

Pecher, I., Oluwunmi, P., Ctchely, G., Wallace, L., Coffin, R., LeVay, L., Heeschen, K., Cook, A., Saffer, D., Expedition 372 Scientists, Expedition 375 Scientists. 2019. The Gas Hydrate Petroleum System of the Northern Hikurangi Margin, New Zealand. AAPG-GTW April 15-17, 2019 Auckland New Zealand. INVITED

Coffin, R., Mueller, J. 2018. Stable and Radio Isotope Analysis Identified Sources of Methane During an In-Situ Remedial Action. 2018 Groundwater Week, December 2-9, 2018 Las Vegas Nevada

Coffin, R.B., Pecher, I., Rose, P.S., Yoza, B. 2018. Geochemical and seismic overview of gas hydrate predictions: Need for further data interpretation. 12th International Gas Hydrate Research and Development Workshop, Southwest Petroleum University, Chengdu, China November 1-3, 2018. INVITED

Coffin, R.B., Rose, P.S., Yoza, B., Pecher, I., Crutchley, G. 2018. Geochemical and Seismic Overview of Spatial Variation in Vertical Methane Migration off the Mahia Peninsula, New Zealand. AGU December 2018 Washington DC.

Coffin, R.B. 2017. Geochemical Assessment of Coastal Gas Hydrate Loading off the Coast of New Zealand. 11th International Gas Hydrate Research and Development Workshop. Chairs: R. Coffin, B. Kvamme, S. Masutani, N. Tenma, T. Uchida

Abdullajintakam, S., R. B. Coffin. H. Abdulla, and T. H. Naehr. 2017. Comparison of Carbonate Authigenesis at the Methane Seeps of Northern Gulf of Mexico. 11th International Gas Hydrate Research and Development Workshop. Chairs: R. Coffin, B. Kvamme, S. Masutani, N. Tenma, T. Uchida

Yu, H. J. P. Smith, A. Mahdy, D. Bridges, and R. Coffin. 2017. Methane sources and fluxes in tundra wetlands on the North Slope of Alaska. 11th International Gas Hydrate Research and Development Workshop. Chairs: R. Coffin, B. Kvamme, S. Masutani, N. Tenma, T. Uchida

Coffin, R.B. 2017. Carbon Dioxide: Energy Recovery, Sequestration and Natural Deposits. SINOPEC, Beijing China, June 2017. INVITED.

Coffin, R.B., Rose, P., Pecher, I., Davy, B. 2017. Carbon Dioxide Migration from Deep Sediments on the Chatham Rise, New Zealand. IODP Planning, Sydney Australia, June 2017. INVITED

Coffin, R.B., Rose, P.S. Yoza, B., Boyd, T.J. Crutchley, G., Mountjoy, J., Pecher, I. 2017. Variation in Vertical Methane Migration on the Hikurangi Margin off the Mahia Peninsula, New Zealand: Presence and Absence of a BSR. GSA Honolulu HI June 2017.

Bridges, D.H., Coffin, R.B., Mahdy, A. 2017. Unmanned Aircraft Operations at Texas A&M University – Corpus Christi. Int. Societ. For Atmosp. Research using Remote. Piloted Aircraft. 22 May 2017.

Coffin, R.B., Stickney, K. 2016 . Permafrost and Hydrate Gas in the Arctic. UMASS Dartmouth. December 2016. INVITED

Coffin, R. 2016. Overflight Data Related to Ecosystem Geochemistry. Texas UAS Summit and Exposition, Austin Texas April 2016. INVITED

Coffin, R. 2016. Integration of Geochemistry and Geophysics Applied to Coastal Gas Hydrate Assessment. February 9, 2016. University of Tromsø. INVITED

Coffin, R., Rose, P., Pecher, I., Davy, B., Kvanne, B. 2016. Carbon Dioxide Vertical Migration on the Chatham Rise, New Zealand. Poster. Gordon Conference, Natural Gas Hydrate Systems, Galveston TX. 28 Feb. – 4 March 2016.

Osburn, C.L., Boyd, T.J., Montgomery, M.T., Bianchi, T.S., Coffin, R.B., Paerl, H.W. 2016. Optical Proxies for Dissolved Organic Matter in Estuaries and Coastal Waters. Ocean Sciences, New Orleans February, 2016.

Coffin, R.B. 2016. Integration of Geochemistry and Geophysics Applied to Coastal Gas Hydrate Assessment. Corpus Christi Geological Society & Coastal Bend Geophysical Society: Luncheon Meeting, February 17, 2016. INVITED.

Pecher, I., Davy, B., Rose, P., Coffin, R. 2015. Are seafloor pockmarks on the Chatham Rise, New Zealand, linked to CO₂ hydrates: Gas hydrate stability considerations. AGU San Francisco OS22B-04.

Rose, P. Coffin, R., Yoza, B., Boyd, T., Crutchley, G., Mountjoy, J., Pecher, I. 2015. Gas and porewater composition of shallow sediments in the Tuaheni Basin, New Zealand. AGU San Francisco OS23B-191

Smith, A. Pecher, I., Davy, B., Coffin, R., Rose, P. 2015. Seismic Studies of Paleo-Pockmarks on the Chatham Rise, New Zealand. AGU San Francisco OS23B-1996

Coffin, R., Rose, P., Yoza, B., Boyd, T., Crutchley, G., Mountjoy, J. 2015. Vertical Methane Migration on the Hikurangi Margin off the Mahia Peninsula, New Zealand. AGU San Francisco OS23D-03

Coffin, R.B. 2015. An Overview of Gas-Hydrate Exploration Using Geo-Science Data. Invited Seminar, Univeristy of Auckland, Auckland New Zealand, April 11, 2015.

Coffin, R.B., Rose P.A. Klaucke, I., Pecher, I. 2014. Evaluation of shallow sediment methane cycling in a pockmark field on the Chatham Rise, New Zealand. AGU OS21A-1100.

Rose, P.A., Cochran, J., Heilbrun, C., Pecher, I., Coffin, R.B. 2014. Sediment Mixing in a Pockmark Field on the Chatham Rise, New Zealand – Implications for Paleooceanographic Reconstructions. AGU PP41C-1394.

Waghorn, K., Pecher, I., Strachan, L., Crutchley, G., Bialas, J., 2014 3-D seismic study into the origin of a large seafloor depression on the Chatham Rise, New Zealand. AGU OS21A-1102.

Murgulet, D., Rose, P., Hay, R., Coffin, R. 2014. Shallow Aquifer Methane Gas Source Assessment. AGU H23C-0897.

Smith, J., Suriben, R., Coffin, R., Boyd, T. 2014. Late-Summer Tundra Methane Concentrations and Fluxes on the North Slope of Alaska. AGU GC11B-560.