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Professor,

Department of Environmental Health Sciences;

Associate Dean for Research,

Arnold School of Public Health

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ACADEMIC TRAINING:

- 1989-93 *NRC* Postdoctoral Fellow. US Geological Survey, Menlo Park, CA.
1987-88 *Fulbright-Hays* Scholar, CSIRO Marine Lab., Queensland, Australia
1987 Ph.D. Zoology/Microbiology, Louisiana State University, Baton Rouge
1984 Woods Hole, Marine Biological Laboratory
1982 M.S. Zoology/Microbiology, Ohio University, Athens, OH.
1979 B.A. Geology/Biology, Eastern Connecticut State University, CT

APPOINTMENTS

- 2014-present** *Associate Dean for Research*, Arnold School of Public Health, USC.
2010-2014 *Associate Chair and Director of Graduate Studies*, Dept. ENHS, USC
2003-present *Professor*, Department of Environmental Health Sciences, USC.
1998 *Associate Professor*, Department of Environmental Health Sciences, USC.
1994 *Assistant Professor*, Department of Environmental Health Sciences,
Arnold School of Public Health, University of South Carolina, Columbia, SC.
1989-93 United States Geological Survey, Menlo Park, CA. (joint)
1988-93 PostDoc/Research Scientist, Stony Brook University, New York (joint)

RESEARCH FOCUS

Research centers on attached bacteria, called *biofilms*, in environmental and health settings.
Specific bacterial foci: • quorum sensing (chemical communication); • extracellular polymer matrix (EPS) properties; • microbial mats in extreme environments and exobiology; • Isolation of novel antibiotics from mats; • nanoparticle approaches for delivery of antibiotics to biofilm infections;

PROFESSIONAL HONORS AND AWARDS

- 2013 **Fulbright Senior Research Fellow**, University of St. Andrews, SCOTLAND
2013 **MASTS Fellowship** (Marine Alliance for Science/Technology in Scotland), SCOTLAND
2004 **The Division Q Lecture**, Amer. Soc. Microbiol. (ASM) Annual Conf, New Orleans, LA.
2003 **USC Educational Foundation Award** for Research in Health Sciences;
1999 **Researcher of the Year Award - School of Public Health**, Univ. South Carolina;
1995 **Dissertation Opponent** on Doctoral Defense, Uppsala University, SWEDEN;
1987 **Fulbright-Hays Postdoctoral Scholar**, CSIRO Marine Lab., Queensland, AUSTRALIA
1990 **National Research Council (NRC) Postdoctoral Fellow**, USGS, Menlo Park, CA
1983 **National Science Foundation (NSF) Dissertation Grant**. (OCE-8313109).

COURSES

- ENHS 450** – Introduction to Public Health Microbiology;
ENHS 665 - Biofilms in the Environment, Health and Disease;
ENHS 770 - Microbial Processes and Pollution;
ENHS 787 - Analytical Concepts in Environmental Health Sciences;
SCHC 401 – UofSC Honors College: Microbes in Health, Infections and Environments - Biofilms;

GRANT REVIEW PANELS

2019. **NASA (National Aeronautics Space Admin),** *Exobiology Program*
2018. **NASA (National Aeronautics Space Admin),** *Exobiology Program*
2012. **NSF (National Science Foundation),** *Dimension in Biodiversity Program*
2008. **NSF (National Science Foundation),** *Microbial Observatories Program*
2004. **NIEHS (National Institute Environ. Health Sci.),** *Superfund Program*
2002. **NSF (National Science Foundation),** *Microbial Observatories Program*
1999. **NIEHS (National Institute Environ. Health Sci.),** *Superfund Program*
1998. **NSF (National Science Foundation),** *OCE Polar Programs*

EDITOR AND EDITORIAL BOARDS

- Editor,* *Advances in Microbiology, 2013-2016*
Editorial Board, *Advances in Microbiology, 2010-2012;*
Guest Editor, Special Issue: 'Biofilms: Extracellular Bastions of Bacteria',
International Journal of Molecular Sciences (IJMS), 2013;
Guest Editor, Special Issue: 'Nanoparticle-Biofilm Interactions', *Frontiers in Microbiology, 2015;*

JOURNAL REVIEWER: *Science*

Ecology
Scientific Reports
PLoS ONE

Others

Applied Environmental Microbiology
Drug Resistance
Frontiers in Microbiology
NanoImpact
Aquatic Biology
Aquatic Ecology
Aquatic Microbial Ecology
Biofouling
Marine Biology
Biogeochemistry
BioTechnology Journal
BioTechnology Progress
Canadian J. Fisheries & Aquatic Sci.
Carbohydrate Research
Continental Shelf Research
Deep-Sea Research
Ecological Engineering

PNAS (Proc. Natl. Acad. Sci. USA)

ISME Journal
Chemical Reviews
Geology

Trends in Microbiology
Advances in Microbiology
International J Molecular Sciences
J. Industrial Microbiology
FEMS Microbial Ecology
Environmental Microbiology
J. Experimental Marine Biol. Ecology
Biofilms
J. Sedimentary Research
Marine Biotechnology
Marine Ecology Progress Series
Marine Environmental Research
Microbial Ecology
Methods in Enzymology
Marine Chemistry
Trans. American Microscopical Assoc.
Microscopy and Microanalysis

Environmental Sci. & Technol; Sensors Water Science and Technology J. Inorganic Biochemistry J. Phycology	Water Research Estuarine Coastal Shelf Science Polar Biology J. Sedimentary Research J. Plankton Research
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FUNDED GRANTS

Current Grants

- 2021-2023 **Environmental Molecular Sciences Laboratory (EMSL)**, PNNL 2 yrs,
Bacterial 'cell-cell talk' in complex microbial communities: identifying diverse and Novel quorum sensing signals in extreme environments. [No. 51876] Alan W Decho (PI); P. Williams, S Donachie, R. Prescott, P. Chain (Co-Is). No UofSC funds; provides resources for on-site (EMSL) instrumentation use.
- 2019-2024 **National Institutes of Health (NIH-NIAID RO1)**, [A1149810-01A1], 5 yrs,
Control of Facial Amphiphilicity to Tune Macromolecular Interactions with Bacteria. C. Tang (PI). **AW Decho**, M. Nagarkatti (Co-PI);
- 2018-2023 **National Institutes of Environmental Health Sciences (NIEHS-PO1)**, 5 yrs,
"Center for Assessment and Prediction of Interactions of Climate Change on Oceans and Human Health (CAPICCOHH): Assessment of Effects on Ocean Health Related Illness and Disease, and Development of Prevention Strategies to Better Protect Public Health. G.I. Scott (Dir). [1PO1 ES028942-01] **AW Decho** (Co-PI)
- 2018-2022 **National Aeronautics Space Admin. (NASA)- Exobiol. Prog.** [17-EXO17 20120], 3 yrs,
Cooperation and Adaptability in Microbial Mats from Extreme Environments: Quorum Sensing and its Relation to Early Life on Earth and Elsewhere. **AW Decho** (PI); P. Chain, S. Donachie (Co-Is);

Past Grants

- 2016-2019 **National Science Foundation (NSF) - BioMaterials Prog.** [1608151]. 4 yrs.
Facial amphiphilic antimicrobial biomaterials-containing fused multicyclic structures. PI C Tang, Co-PI: **AW Decho**, J. Ebalunode;
- 2015-2019 **National Institutes of Health (NIH-RO1)** [A120987]; 4 yrs. *Establishing a New Paradigm of Metallopolymers to Reinstatate Vitality of Antibiotics against Multidrug Resistant Bacteria.* PI: C Tang, Co-I: **AW Decho**, M Nagarkatti, M Chruszcz;
- 2012-2015 **National Science Foundation (NSF) Biomaterials Prog.** [1206072] 3 yrs.
Natural resin acid-containing antimicrobial materials: synthesis, mechanisms of action. PI: C Tang; Co-PI: **AW Decho**;
- 2010-2014 **National Science Foundation (NSF) Biomed Eng (BME)Prog.;** [1032579] 3 yrs.
Engineering the surface chemistry of nanoparticles: a two-stages attack on Infection biofilms. PI: **Decho AW**, Co-PI: Benicewicz BC.
- 2007-2010 **National Science Foundation (NSF) Environ. Gen. Prog.**[0723707] 3 yrs
En-Gen: Bacterial communication in microbial mats: a Metagenomic approach to understanding quorum sensing gene diversity/ expression.

- (PI: RS Norman Co-PI: AW Decho)
- 2006-2008 **DOE: Community Sequencing Program (CSP)** (2 yrs) *Sequencing lithifying (CaCO₃) marine stromatolite mat communities relevant to carbon record* (PI: **AW Decho**; Co-PIs: RS Norman, RP Reid, PT Visscher)
- 2005-2010 **National Science Foundation (NSF)**, CRC Program [0526821] 3 yrs
Characterization of Changes in molecular structure and activity of autoinducer molecules relevant to bacteria chemical communication. (PI: **AW Decho**; Co-PIs: J Ferry, SM Angel, PL Ferguson)
- 2003-2008 **National Science Foundation (NSF)** BioComplexity Prog. [0221796] 3 yrs
Biocomplexity of marine stromatolites: Biogeochemical cycling, microbial population dynamics, and mineral formation in a three billion year old ecosystem. PI: RP Reid, Co-PI: **AW Decho**, P Visscher, R Marinelli, J Stolz
- 2002-2007 **National Science Foundation (NSF)** Microbial Observatories Prog. [0132528]
Anhydrophilic, halotolerant microbial mats of San Salvador Island, Bahamas. (PI: H. Paerl; Co-PI: **AW Decho**, T. Steppe, J. Pinckney)
- 2000-2004 **National Oceanic and Atmospheric Administration (NOAA).**
Land-use effects on bioavailability and toxicity of urban contaminants in Waters/ Sediments of Coastal Estuaries PI: **AW Decho**; Co-PI: Chandler)
- 1997-2000 **Department of Defense (DOD).** 3 yrs, *Accelerated Research on biofouling.* (PI: M Fletcher; CoPI: **A Decho**, C Lovell)
- 1997-2000 **Environmental Protection Agency (EPA)/ EPSCoR.** *A Multidisciplinary Effort Linking Impacts of Sediment Contaminants on Toxicological Responses with Genetic Adaptation* (PI: BC Coull; CoPI: **A Decho**, GT Chandler, T Shaw, JQuattro)
- 1996-2002 **Office of Naval Research (ONR).** Environ. Optics Program, 7 yrs
Microbial Biofilms: A Parameter Altering the Optical Properties of Sediments and Other Surfaces. PI: **AW Decho**
- 1996-2002 **National Oceanic and Atmospheric Administration (NOAA).** Office of Oceanic Research Programs, *Urbanization of southeastern estuarine systems (USES).* Co-Directors J Vernberg and W Vernberg. **Decho** (Co-I)
- 1996-1999 **National Science Foundation (NSF)** Biol. Oceanogr. Prog [9617738] 3 yrs
Microstructure in Modern Marine Stromatolites: A Geomicrobiological Investigation of Processes forming Lithified Micritic Laminae." (PI: RP Reid; Co-PI: **AW Decho**, PT Visscher)
- 1995-1998 **National Science Foundation (NSF)** Biol Oceanogr. Prog [9416749]
Experimental Analysis of Waterborne Chemical Cues as Agents Regulating Larval Settlement-Metamorphosis. (PI: RK Zimmer-Faust; Co-PI: **AW Decho**, J Eckman)
- 1983-1985 **National Science Foundation (NSF)** Biological Oceanography Program. 3 yrs
Dissertation Grant. Interactions of microbial flora and dissolved organic compounds with estuarine meiofauna. PI: JW Fleeger; Co-PI: **AW Decho**,

FIVE NOTEWORTHY PUBLICATIONS

- Rahman, MA; Bam, M; Luat, E; Jui, MS; Ganewatta, M; Shokfai, T; Nagarkatti, M; Decho, AW; Tang, C. 2018. *Macromolecular-Clustered Facial Amphiphilic Antimicrobials*. **Nature Communications** 9, 5231, doi: [10.10038/s41467-018-07651-7](https://doi.org/10.10038/s41467-018-07651-7). [IF = 12.1]
- Decho AW, RL Frey, and JL Ferry 2011. *Chemical challenges to bacterial AHL signaling in the environment*. **Chemical Reviews** 111, 86-99 doi: [10.1021/cr100311q](https://doi.org/10.1021/cr100311q) [JOURNAL COVER, IF=24]
- Ferry JL, P Craig, C Hexel, P Sisco, R Frey, PL Pennington, MH Fulton, IG Scott, AW Decho, S Kashiwada, CJ Murphy, TJ Shaw. 2009. *Transfer of gold nanoparticles from the water column to the estuarine food web*. **Nature Nanotechnology** 4, 441-444. [IF = 21]
doi-org.pallas2.tcl.sc.edu/10.1038/nnano.2009.157
- Reid RP, PT Visscher, AW Decho, et al. 2000. *The role of microbes in accretion, Lamination, and early lithification of modern marine stromatolites*. **Nature** 406, 989-992. [IF = 33]
doi-org.pallas2.tcl.sc.edu/10.1038/35023158
- Decho AW. 1990. *Microbial exopolymer secretions in ocean environments: Their role(s) in food webs and marine processes*. **Oceanography Marine Biology Annual Reviews** 28, 73-154 [>1600 cites]

PEER-REVIEW PUBLICATIONS

[Cites: Google Scholar > 12,600; H=53; WOS> 7,950, H= 44]

119. Alabresm A, SL Chandler, BC Benicewicz, **AW Decho**. 2021. Nano-Targeting of Resistant Infections with a Special Emphasis on the Biofilm Landscape. **Bioconjugate Chemistry** 32: 1411-1430. doi.org/10.1021/acs.bioconjchem.1c00116. PMC8527872; PMID: [34319073](https://pubmed.ncbi.nlm.nih.gov/34319073/) (IF = 4.7)
118. Yang, P, Luo, Y, L. Kurnaz, M Bam, X Yang, **AW Decho**, M Nagarkatti, C Tang. 2021. Biodegradable polycaprolactone metallopolymer-antibiotic bioconjugates containing phenylboronic acid and cobaltocenium for antimicrobial applications. **Biomaterials Science** 9: 7237-7246. doi: [10.1039/D1BM00970B](https://doi.org/10.1039/D1BM00970B).
117. Cao, X, L Xu, **AW Decho**, J. Lead. 2021. A method for cultivation, fractionation, and metal determination to evaluate metal removal by the combination of NPs and bacteria. **MethodsX**, 8: 101550. doi: [10.1016/j.mex.2021.101550](https://doi.org/10.1016/j.mex.2021.101550)
116. Alabresm, A., YP Chen, S Wichter-Chandler, J Lead, BC Benicewicz, **AW Decho** 2020. Nanoparticles as antibiotic-delivery vehicles (ADVs) overcome resistance by MRSA and other MDR bacterial pathogens: the grenade hypothesis. **Journal Global Antibiotic Resistance** 22: 811-817 doi.org/10.1016/j.jgar.2020.06.023
115. Prescott, RD and **AW Decho**. 2020. Flexibility and adaptability of quorum sensing in nature. **Trends in Microbiology**. 28(6): 436-444. doi.org/10.1016/j.tim.2019.12.004; PMC7526683; (Journal Cover: IF= 13)
114. Rahman, MA; Jui, MS; Bam, M; Cha, Y; Luat, E; Alabresm, A; Nagarkatti, M; **Decho, AW**; Tang, C. 2020. Facial Amphiphilicity-Induced Polymer Nanostructures for Antimicrobial Applications. **ACS Applied Materials & Interfaces** 12(19): 21221-21230. doi: [10.1021/acsami.9b19712](https://doi.org/10.1021/acsami.9b19712)
113. Cao, X, Alabresm, A, Chen, YP, **Decho, AW**, Lead, J. 2019. Improved metal remediation using a combined bacterial and nanoscience approach. **Science of Total Environment** doi:10.1016/j.scitotenv.2019.135378.
112. Yang, P, Pageni P, Rahman MA, Bam M, Zhu T, Cheng YP, Nagarkatti M, **Decho AW**, Tang C. 2019.

- Gold Nanoparticles with Antibiotic-Metallopolymers toward Broad-Spectrum Antimicrobial Effects. **Advanced Healthcare Mater** 1800854; doi: [10.1002/adhm.201800854](https://doi.org/10.1002/adhm.201800854). PMC6426663
111. Decho, AW. 2018. Biological hotspots in oceans as unique reservoirs for novel antibiotics. **Journal of Marine Microbiology**. 2(1): 14-16.
110. Rahman, MA; Bam, M; Luat, E; Jui, MS; Shokfai, T; Nagarkatti, M; **Decho, AW**; Tang, C. 2018. Macromolecular-Clustered facial amphiphilic antimicrobials. **Nature Communications** 9, 5231, doi: [10.10038/s41467-018-07651-7](https://doi.org/10.10038/s41467-018-07651-7). PMC6286373. (IF= 12.1)
109. Pageni, P; Yang, P; Bam, M; Zhu, T; Chen, YP; **Decho, AW**; Nagarkatti, M; Tang C. 2018. Recyclable Magnetic nanoparticles grafted with antimicrobial metallopolymer-antibiotic bioconjugates. **BioMaterials** 178:363-372. Doi:[10.1016/j.biomaterials.2018.05.007](https://doi.org/10.1016/j.biomaterials.2018.05.007). PMC6054821 (IF= 11.5)
108. Ganewatta, MS; Rahman, MA; Mercado, L; Shokfai, T; Decho, AW; Reineke, TM; Tang, C. 2018. Facially amphiphilic polyionene biocidal polymers derived from Lithocholic acid. **Bioactive Materials** 3(2): 186-193. doi.org/[10.1016/j.bioactmat.2018.02.001](https://doi.org/10.1016/j.bioactmat.2018.02.001). PMC5935773. (IF= 14.1)
107. Pageni, P; Yang, P; Chen, YP; Huang, Y; Bam, M; Zhu, T; Nagarkatti, M; Benicewicz, B; Decho, AW; Tang, C. 2018. Charged Metallopolymer-Grafted Silica Nanoparticles for Antimicrobial Applications. **Biomacromolecules**. 19(2): 417-425; doi: [10.1021/acs.biomac.7b01510](https://doi.org/10.1021/acs.biomac.7b01510) PMC5971106 (IF= 6.1)
106. Alabresm, A; YP Chen; AW Decho; J Lead. 2018. A Novel Method for the Synergistic Remediation of Oil-Water Mixtures Using Nanoparticles and Oil-Degrading Bacteria. **Science of Total Environment** 630:1292-1297. doi: [10.1016/j.scitotenv.2018.02.277](https://doi.org/10.1016/j.scitotenv.2018.02.277)
105. Astasov-Frauenhoffer M, Varenayanil MM, **Decho AW**, Waltimo T, Braissant O. 2017. Exopolysaccharides regulate calcium flow in cariogenic biofilms. **PLoS ONE** 12(10): e0186256. doi.org/[10.1371/journal.pone.0186256](https://doi.org/10.1371/journal.pone.0186256). PMC5638444
104. Gummadidala, PM., Holder, ME., O'Brien, JL., Ajami NJ., Petrosino JF, Mitra C, Chen YP, **Decho AW**, Chanda A. 2017. Complete genome sequence of *Vibrio gazogenes* ATCC 43942. **Genome Announcements** 5(30), e00733-17. doi: [10.1128/genomeA.00733-17](https://doi.org/10.1128/genomeA.00733-17). PMC5532843
103. **Decho, AW**, and T Gutierrez. 2017. Microbial Extracellular Polymeric Substances (EPS) in Ocean Systems. **Frontiers in Microbiology** 8, 922; doi: [10.3389/fmicb.2017.00922](https://doi.org/10.3389/fmicb.2017.00922). PMID: PMC5445292
102. Alabresm, A., S. Mirshahghassemi, GT Chandler, **AW Decho**, J Lead. 2017. Use of PVP-coated magnetite nanoparticles to ameliorate oil toxicity to a marine estuarine meiobenthic copepod and stimulate growth of oil-degrading bacteria. **Environmental Science: Nano**. 4, 1859-1865. doi: [10.1039/c7en00257b](https://doi.org/10.1039/c7en00257b).
101. Yang, P.; Bam, M.; Pageni, P.; Zhu, T.; Chen, Y.P.; Nagarkatti, M.; **Decho, A.W.**; Tang, C. 2017. A Trio Act of Boronolectin with Antibiotic-Metal Complexed Macromolecules toward Broad-Spectrum Antimicrobial Efficacy. **ACS Infectious Diseases**. 3: 845-854. doi: [10.1021/acsinfecdis.7b00132](https://doi.org/10.1021/acsinfecdis.7b00132)
100. Decho, A.W. (2016). "Unique and baffling aspects of the matrix: EPS syneresis and glass formation during desiccation," in **The Perfect Slime**, ed. H.-C. Flemming, T.R. Neu, and J. Wingender, (IWA Publishing, London, UK), 207-226, doi: [10.2166/9781780407418](https://doi.org/10.2166/9781780407418). [BOOK CHAPTER]
99. Gumadidala, PM, YP Chen, KR Beauchesne, KP Miller, C Mitra, N Babaszek, M Velez-Martinez, PDR Moeller, JL Ferry, **AW Decho**, A Chanda. 2016. Aflatoxin-exposure of *Vibrio gazogenes* as a novel system for the generation of aflatoxin synthesis inhibitors. **Frontiers in Microbiology**, Vol. 7, doi: [10.3389/fmicb.2016.00814](https://doi.org/10.3389/fmicb.2016.00814). PMC5532843
98. Miller, KP, L Wang, YP Chen, PJ Pellichia, BC Benicewicz, **AW Decho**. 2015. Engineering nanoparticles

- to silence bacterial communication. **Frontiers in Microbiology** 6:189. doi: [10.3389/fmicb.2015.00189](https://doi.org/10.3389/fmicb.2015.00189); PMID: PMC4354405
97. Ikuma, K., **AW Decho**, BL Lau. 2015. When nanoparticles meet biofilms—interactions guiding the environmental fate and accumulation of nanoparticles. **Frontiers in Microbiology**, Vol. 6. doi: [10.3389/fmicb.2015.00591](https://doi.org/10.3389/fmicb.2015.00591). PMID4468922
96. Ganewatta, MS, KP Miller, SP Singleton, P Mehrpouya-Bahrami, YP Chen, Y Yan, M Nagarkatti, P Nagarkatti, AW Decho, C Tang. 2015. Antibacterial and Biofilm-Disrupting Coatings from Resin Acid-Derived Materials. **Biomacromolecules** 16(10), 3336-3344. (IF= 6.1)
95. Miller KP, L Wang, BC Benicewicz, **AW Decho**. 2015. Inorganic nanoparticles engineered to attack bacteria. **Chemical Society Reviews** DOI: [10.1039/c5cs00041f](https://doi.org/10.1039/c5cs00041f). (IF= 42.8)
94. **Decho, AW**. 2015. Localization of quorum sensing by extracellular polymeric substances (EPS): considerations of in situ signaling. In: Hagen SJ (Ed), The Physical Basis of bacterial quorum communication. **Biomedical Engineer.**, DOI: [10.1007/978-14939-1402-9_6K](https://doi.org/10.1007/978-14939-1402-9_6K). [BOOK CHAPTER]
93. Zhang, J., Yan, J., Pageni, P., Yan, Y., Wirth, A., Chen, Y.P., Qiao, Y., Wang, Q., Decho, A.W., and Tang, C. 2015. Anion-Responsive Metallopolymer Hydrogels for Healthcare Applications. **Scientific Reports**. 5:11914 | DOI: [10.1038/srep11914](https://doi.org/10.1038/srep11914). PMID4511866. (IF= 4.3)
92. Wang, L., M. Cole, J. Li, Y. Zheng, Y.P. Chen, K.P. Miller, **A.W. Decho**, B.C. Benicewicz. 2015. Polymer Grafted recyclable magnetic nanoparticles. **Polymer Chemistry**. (DOI: [10.1039/C4PY01134A](https://doi.org/10.1039/C4PY01134A))
91. Zhang J, YP Chen, KP Miller, MS Ganewatta, M Bam, Y Yan, M Nagarkatti, **AW. Decho**, C Tang. 2014. Antimicrobial Metallopolymers and Their Bioconjugates with Conventional Antibiotics against Multidrug Resistant Bacteria. **J. Amer. Chem. Soc. (JACS)**. 136: 4873-4876. (IF= 4.4)
90. Wang L, YP Chen, KP Miller, BM Cash, S Jones, S Glenn, BC Benicewicz, **AW Decho**. 2014. Antibiotic delivery using functionalized nanoparticles to kill MRSA and other bacteria. **Chemical Communications** 50(81), 12030-12033. (IF= 5.9)
89. Ganewatta MS, YP Chen, J Wang, J Zhou, J Ebalunode, M Nagarkatti, **AW Decho**, C Tang. 2014. Bio-Inspired Resin Acid-Derived Materials as Antibacterial resistance agents with Unexpected Activities. **Chemical Science** 5: 2011-2016. (IF= 9.3)
88. **Decho AW**. 2013. The EPS matrix as an adaptive bastion from biofilms: Introduction to Special Issue. **International Journal Molecular Sciences** 14(12): 23297–23300. doi: [10.3390/ijms141223297](https://doi.org/10.3390/ijms141223297). PMID3876045
87. Petrisor AI, S Szyjka, T Kawaguchi, PT Visscher, RS Norman, **AW Decho**. 2014. Changing microspatial patterns of sulfate reducing microorganisms (SRM) during cycling of marine stromatolite mats. **International Journal Molecular Sciences** 15: 850-877. doi: [10.3390/ijms15010850](https://doi.org/10.3390/ijms15010850). PMID3907843
86. Ikuma K, AS Madden, **AW Decho**, BLT Lau. 2014. Deposition of nanoparticles onto polysaccharide-coated surfaces: implication for nanoparticle-biofilm interactions. **Environmental Science Nano** 1: 117-122. (IF= 7.7)
85. Burns JM, Pennington PL, Sisco P, Frey R, Kashiwada S, Fulton MH, Scott GI, **Decho AW**, Murphy CJ, Shaw TJ, Ferry JL. 2013. Surface charge controls the fate of Au nanorods in saline estuaries. **Environ. Sci. Technol**, 47 (22), 12844–12851.
84. Lau BLT, WC Hockaday, K Ikuma, O Furman, **AW Decho** 2013. A preliminary assessment of the interactions between the capping agents of silver nanoparticles and environmental organics. **Colloids and Surfaces A: Physicochemical and Engineering Aspects**. 435: 22-27.
83. Noffke N, **AW Decho**, P Stoodley 2013. Slime through time- the fossil record of prokaryote evolution. **Palaios** 28: 1-5. DOI: [10.2110/palo.2013.S01](https://doi.org/10.2110/palo.2013.S01)

82. Lau B, K Ikuma, **AW Decho**. 2013. The extracellular bastions of bacteria – A biofilm way of life! **Nature Educ. Knowledge**. 4(2): 2
81. Nevius BA, YP Chen, JL Ferry, **AW Decho**. 2012. Surface-functionalization effects on uptake of fluorescent polystyrene nanoparticles by model biofilms. **Ecotoxicology**. 21: 2205-2213. DOI 10.1007/s10646-012-0975-3
80. Chen Y, PA Wilbon, YP Chen, J Zhou, M Nagarkatti, C Wang, F Chu, **AW Decho**, C Tang. 2012. Amphipathic antibacterial agents using cationic methacrylic polymers with natural rosin as pendant groups. **RSC Advances** DOI: [10.1039/c2ra21675b](https://doi.org/10.1039/c2ra21675b).
79. Wang J; Y Chen; K Yao; P Wilbon; W Zhang; L Ren; J Zhou; M Nagarkatti; C Wang; F Chu; X He; **AW Decho**; C Tang. 2012. Robust Antimicrobial Compounds and Polymers Derived from Natural Resin Acids. **Chemical Communications** 48: 916-918.
78. Handy RD, G Cornelis, T Fernandes, O Tsyusko, **AW Decho**, C Metcalfe, T Sabo-Atwood, J Steevens 2012. Ecotoxicity test methods for engineered nanomaterials: practical experiences and recommendations from the bench. **Environmental Toxicology Chemistry** 31: 15-31.
77. **Decho AW**, RL Frey, JL Ferry 2011. Chemical challenges to bacterial AHL signaling in the environment. **Chemical Reviews** 111: 86-99 DOI: [10.1021/cr100311q](https://doi.org/10.1021/cr100311q) (IF=24)
76. **Decho, AW**. 2011. Extracellular polymeric substances (EPS). In: J. Reitner, V Thiel (eds), Encyclopedia of Geobiology, Encyclopedia of Earth Sciences, Springer-Verlag p. 359-361. ISBN 978-1-4020-9211-4. [BOOK CHAPTER]
75. **Decho, AW**. 2010. Overview of biopolymer-induced mineralization: What goes on in biofilms? **Ecological Engineering** 36: 137-144.
74. Bey B, EB Fichot, G Dayama, **Decho AW**, Norman RS 2010. Extraction of high molecular weight DNA from microbial mats. **Biotechniques** 49: 631-640.
73. Frey R, L He, Y Cui, **AW Decho**, PL Ferguson, T Kawaguchi, JL Ferry. 2010. The reaction of *N*-acylhomoserine lactones with hydroxyl radicals: rates, production, and effects on signaling activity. **Environmental Science Technology** 44: 7465-7469.
72. **Decho AW**, RS Norman, PT Visscher. 2010. Quorum sensing in natural environments: emerging views from microbial mats. **Trends in Microbiology** 18: 73-80.
71. Petrisor AI, L Dragomirescu, **AW Decho**. 2010. Clustering of approaches to microbial image enhancement and classification based on Buscra Baroni-Urbani's algorithm and Dragomirescu's homogeneity. **J. Control Engineer. Appl. Inform.** 12: 21-29.
70. Stolz JF, RP Reid, P Visscher, **AW Decho et al.** 2010. The microbial communities of modern marine stromatolites at Highborne Cay, Bahamas. **Atoll Research Bulletin**, 567: 1-29.
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17. **Decho AW**, SN Luoma. 1994. Humic and fulvic acids: sink or source in the availability of metals to marine bivalves *Macoma balthica* and *Potamocorbula amurensis*? **Marine Ecology Progress Series** 108: 133-145.
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Potamocorbula amurensis and *Macoma balthica*: Significance to the assimilation of carbon
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- 10 **Decho AW**, D.J.W. Moriarty. 1990. Bacterial exopolymer utilization by a harpacticoid copepod: a
methodology and results. **Limnology and Oceanography** 35: 1035-1045.
- 9 **Decho AW**, JW Fleegeer. 1988. How do harpacticoid grazing rates differ over a tidal cycle: field
verification using chlorophyll-pigment analyses. **Marine Ecology Progress Ser.** 45:263-270.
- 8 **Decho AW**, JW Fleegeer. 1988. Microscale dispersion of meiobenthic copepods in response to food
resource patchiness. **Journal of Experimental Marine Biology Ecology** 118: 229-243.
- 7 **Decho AW**, JW Fleegeer. 1988. Ontogenetic feeding shifts in the meiobenthic harpacticoid copepod
Nitocra lacustris. **Marine Biology** 97: 191-197.
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copepods. **Marine Ecology Progress Series** 33: 139-146.
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copepods in relation to resident microbial flora. **Hydrobiologia** 131:87-96.
- 3 **Decho AW**, JW Fleegeer. 1986. A new meiobenthic species of *Laophonte* (Copepoda: Harpacticoida)
from the Florida Keys. **Transactions of American Microscopy Society** 105: 31-37.
- 2 **Decho AW**, WD Hummon, JW Fleegeer. 1985. Meiofauna-sediment interactions around subtropical
seagrass sediments using factor analysis. **Journal of Marine Research** 43: 237-255.
- 1 **Decho AW**. 1984. Occurrence of a Cephalocarid (*Lightiella incisa* Gooding) from the Florida Keys
with notes on its habitat. **Northeast Gulf Science** 7: 119-120.

BOOKS: *Molecular Ecology of Biofilms*. Robert J.C. McLean and **Alan W. Decho** (Eds.). 2002.
Horizon Press, Norfolk, UK. ISBN 1-898496-46-8, 123 pp.

Book Reviews: 2001. *Benthic Boundary Layer: transport processes and Biogeochemistry*, edited by
BP Boudreau, BB Jørgensen. 404 p. Oxford Univ. Press.
1997. *Viral Ecology*, edited by C.J. Hurst. CRC Press, Boca Raton.
1994. *Structure, cellular synthesis and assemble of biopolymers*, (S. Case, Ed.).
SpringerVerlag. 294 p. (*Rev. publ:* 1994. *J. Exper.Mar.Biol.Ecol.* 173: 155-
159.

Proposal Reviewer: National Science Foundation (NSF);
National Institute of Environmental Health Sciences (NIEHS);
National Ocean Atmospheric Administration (NOAA);
The Swiss National Science Foundation;

Natural Sciences and Engineering Research Council of Canada;
Petroleum Research Fund, (Amer. Chem. Soc., Wash. DC);
The Natural Environment Research Council (NERC), U.K.;
US Department of Agriculture (USDA);
Water Environment Research Foundation (WERF);
Research Enhancement Program, San Francisco Bay/Delta;
Sea Grant (SC, California, Michigan, Virginia, Maryland, Hawaii);

PATENTS:

1. **2019.** Nanoparticles for the amelioration of oil toxicity and stimulation of bacterial oil degradation. (submitted Ser. No. 16/466,853)
2. **2018.** Divisional Patent: Anion-paired cationic Metallocene-containing compounds and polymers as Antimicrobial Agents. Approved: US Patent No. 9,872,917
3. **2016.** Anion-paired cationic Metallocene-containing compounds and polymers as Antimicrobial Agents. Approved: US Patent No. 9,402,394.
4. **2016.** Rosin-derived cationic compounds and polymers. Approved: US Patent No. 9,357,775.
5. **2015.** High-throughput *in vitro* translation (cell-lysate based) assay for detecting quorum sensing signals. Approved: US Patent No. 8,932,807.
6. **2015.** Cyclodextrin Functionalized Nanoparticles for Quenching Bacterial Communication. Approved: US Patent No. 10,717,788.
7. **2014.** Divisional Patent: Rosin-derived cationic compounds and polymers. Approved: US Patent No. 8,901,254;
8. **2013.** Rosin-derived cationic compounds and polymers and their methods of preparation. Approved: US Patent No. 9,357,775. 8,604,128 (2013).

KEYNOTE SPEAKER

2021. **Decho, A.W.** KEYNOTE: *Why have microbial mats persisted through Geologic time: Evidence from present day.* M-FED Annual Conference, held Museum National d'Histoire Naturelle, Paris, **FRANCE**. Oct 12-16.
2018. **Decho, A.W.** KEYNOTE. *Attacking Bacterial Pathogens using Nanoparticle-based Approaches: Steps and Hurdles.* EuroSciCon 6th International Conference on Antibiotics, Antimicrobials & Resistance, held Edinburgh, **SCOTLAND** October 11-12.
2018. **Decho, A.W.** KEYNOTE: *The Biofilm: Efficient, Adaptable & Structured.* 19th International Conference on Marine Corrosion and Fouling. Melbourne, FL.
2008. **Decho, A.W.**, Przekop, K.M., Braissant, O., Gallagher, C. Glunk, C., Dupraz, C. & Visscher, P.T. KEYNOTE: *An emerging framework for understanding Marine Stromatolite Formation.* International Kalkowsky- Symposium on the "Geobiology of Stromatolites" celebrating the 100th Anniversary of their Discovery, Göttingen, Germany, Oct 4-11, 2008.
2008. **Decho, A.W.** KEYNOTE: *Biopolymer-induced mineralization and its impact on material/soil properties.* 1st International Conference on BioGeoCivil Engineering (BGCE), held June 23-25, 2008. Delft, The Netherlands

INVITED SPEAKER

2017. **Decho AW.** (Platform INVITED) Biofilms as a natural antibiotic-resistant bastion for bacteria.

- SOCIETY OF ENVIRONMENTAL TOXICOLOGY AND CHEMISTRY (SETAC) Annual Meeting. Session: Development of Microbial Environmental Resistance. Minneapolis, MN. (Nov).
2014. **Decho AW.** (INVITED) Unique and baffling aspects of the Natural EPS matrix in situ. IWA Conference (The Perfect Slime – nature, properties, regulation and dynamics of EPS. Held University of Duisburg-Essen, **GERMANY**, held Sept 10-14, 2014. Host: H.-C. Flemming.
2014. **Decho AW.** (INVITED) *Margalef Lecture*, University of Vienna, **AUSTRIA**. "Biofilms remixed: Microbial Mats and Stromatolites" (May 2014) Host: T. Battin.
2014. **Decho AW.** (INVITED). *Natural biofilms of stromatolites and other microbial mats*. International Conference on Biofilm6, held Vienna, **AUSTRIA** (May 2014); Host: T. Battin
2012. **Decho, A.W.,** B. Lau, K. Ikuma. (INVITED). When Nanoparticles enter the 'house of bacteria' - Role of biofilms in fate and transport. Sustainable Nanotechnology Organization (SNO) 1st Annual Conference, held Arlington, VA. (Nov. 2011) Host: B. Karn
2011. **Decho, A.W.** (INVITED). *Quorum sensing in nature: What happens out there?* Gordon Research Conference on Geobiology of Precambrian Earth, held Jan 30-Feb 4, Ventura, CA. Host: N. Noffke
2010. **Decho, A.W.** (INVITED) Biofilms and quorum sensing in marine systems: An overview. ASLO-AGU Annual Meeting, held Portland OR Feb 2010.
2008. **Decho AW.** (INVITED) *EPS: An elusive refugia for bacteria in water systems*. Trans Atlantic Water Symposium, held Baton Rouge, LA. Mar 29-Apr 2, 2008. Host: Prof. Dr. H.-C. Flemming
2004. **Decho AW.** (INVITED) 'The *Division Q Lecture*' American Soc. Microbiol. (ASM) Ann. Conf., 'Cyanobacterial EPS in Marine Systems'. New Orleans, LA. (May) Host: Dr. Keith Cooksey.
2003. **Decho AW.** (INVITED) American Society of Limnology and Oceanography (ASLO) Annual Conference, Salt Lake City, UT. Feb. 2003
2001. **Decho AW.** (INVITED) Microbial Mat Symposium II. "Fossil and Recent Biofilms". held in Oldenburg Universitat, **GERMANY**. Host: Prof. Dr. W.E. Krumbein
2000. **Decho AW.** (INVITED) International Water Association(IWA)- Specialist Conference on Biofilms, Universitat Duisburg-Essen, **GERMANY**, The Environmental Significance of Microbial Biofilms, held (Sept.). Host: Prof. Dr. H.-C. Flemming
1999. **Decho AW.** (INVITED) University of Plymouth, Plymouth, **ENGLAND**, European Community International Conference On Intertidal Mudflats, properties and processes. *Microbial Biofilms in Intertidal Systems* (April) Host: Prof. Keith Dyer.
1999. **Decho AW.** (INVITED) American Society of Limnology & Oceanography (ASLO). Symposium on Microbial Biofilms and Mucilage in Ocean Processes. 'New Approaches in the Characterization of Microbial EPS' (February)
1996. **Decho AW.** (INVITED) American Society of Microbiology (ASM) Annual Conference, New Orleans, LA. *Sorption of Molecules to Hydrophilic Extracellular Polymers: Do Hydrophobic Microzones Exist?*. Host: Dr. John Lawrence.
1996. **Decho AW.** (INVITED) American Society of Microbiology Conference on MICROBIAL BIOFILMS, Snowbird, Utah. *Partitioning of Extracellular Enzyme Activities within Microbial Biofilms*. Host: Dr. J. W. Costerton.
1993. **Decho AW.** (INVITED) *Assessing the role of exopolymers in microbial mats: techniques.*" NATO Advanced Research Workshop on Microbial Mats, Arcachon, **FRANCE**.
1993. **Decho AW.** (INVITED) International Symposium on Stabilization of sediments, Univ. Oldenburg, **GERMANY**; "Extracellular Polymeric Substances and Sediment Stabilization." Host: Prof. Dr. W.E. Krumbein.

1993. **Decho AW.** (INVITED) NOAA Symposium: Sustainable Development in the Southeastern Coastal Zone. Myrtle Beach, South Carolina; "*Factors Influencing the Bioavailability of metals in bivalve food*". Host: Dr. F. John Vernberg
1992. **Decho AW.** (INVITED) International-Workshop on "Mucilage Phenomenon of the Adriatic Sea, held Cesenatico, **ITALY**"; "*Microscale Parameters influencing the degradation of exopolymer mucilages.*" Host: Dr. RA Vollenweider.

SEMINARS

2014. **Decho, A.W.** (Seminar). *Natural biofilms of stromatolites and other microbial mats.* University of Vienna, Dept. Biology, held Vienna, **AUSTRIA** (May 2014); Host: T. Battin
2013. **Decho, A.W.** (SEMINAR) Herriot Watt University, Dept. Biology, **SCOTLAND**. '*Bacterial Biofilms and Applications of Engineered Nanoparticles to their study and control.* (May 2013)
2013. **Decho, A.W.** (SEMINAR) Scottish Oceans Institute (SOI), Univ. St. Andrews, **SCOTLAND**. '*Roles of Bacterial Biofilms and Chemical Communication in Coastal Sediment Systems: Insights into Sediment Stabilization.* Host: Dr. David Paterson
2012. **Decho, AW.** (SEMINAR) Old Dominion Univ., Dept Earth & Ocean Sciences. *Extracellular Polymeric (EPS) Matrices of Biofilms: An elusive but emergent property of natural microbes.* Host: Dr. Nora Noffke
2010. **Decho, A.W.** (SEMINAR): Department of Biology, Indiana University. *What happens out there?: Quorum sensing under natural conditions.* Host: Dr. W. Clay Fuqua
2009. **Decho, A.W.** (SEMINAR). Department of Geology, Baylor University. '*Biofilms: a sorptive sponge for environmental release of nanoparticles.* Host: Dr. Boris Lau.
2007. **Decho AW.** (SEMINAR) College of Charleston (SC), Dept. Biology. "*Chemical Communication in Microbial Mats: A biogeochemical Challenge.* Dec. 2007 Host: Dr. I. DeBuran
2006. **Decho AW.** (SEMINAR) National Institutes of Health (NIH), Washington, SC (BioPhysics Group). '*Role of Bacterial Biofilms and EPS in Health and Disease*'.
2005. **Decho AW.** (SEMINAR) Agouron Institute, La Jolla, CA. "*The Illusive EPS Matrix of Bacteria.* Host : Dr. Mel Simon (Caltech)
2004. **Decho AW.** (SEMINAR) Duquesne University, Department of Biology, Pittsburgh, PA.: '*Probing the Earth's Earliest Biofilms*' Host: Dr. John Stolz.
2004. **Decho AW.** (SEMINAR) Old Dominion University, Department of Oceanography, Norfolk, VA.: '*Marine Stromatolites and the earth's earliest biofilms*', Host: Dr. Nora Noffke
1992. **Decho AW.** (SEMINAR) Monterey Bay Aquarium Research Institute, Monterey, CA. "*Exopolymers of microbial origin: source of DOM and POM.*" Host: Dr. Jim Barry.
1991. **Decho AW.** (SEMINAR) Michigan Technological Univ., Dept. Biol. Sci. SEMINAR: "*Role(s) of microbial exopolymers in ocean processes.*" Host: Dr. Stephen Bowen.
1989. **Decho AW.** (SEMINAR) University of California-Santa Cruz, Dept. Appl. Sci. "*Exopolymers of bacteria: Source of labile carbon for deposit-feeders.*" Host: Dr. Ken Bruland
1989. **Decho AW.** (SEMINAR) University of Connecticut, Dept. Marine Sci., Avery Point. "*Role(s) of microbial exopolymers in ocean processes.*" Host: Dr. Robert Whitlatch
1988. **Decho AW.** (SEMINAR) Queensland Univ., Dept. Microbiol., Brisbane, **AUSTRALIA**. "*Uptake and utilization of bacterial exopolymer by a harpacticoid copepod*".
1988. **Decho AW.** (SEMINAR) CSIRO Darling-Murray Freshwater Research Laboratory, Albury, N.S.W., **AUSTRALIA**. "*Uptake/utilization of bacterial exopolymer by harpacticoid copepods*".

ORGANIZATION OF CONFERENCES/SESSIONS

CONFERENCE Organizer.

2004. CONFERENCE ORGANIZING CHAIR, AMERICAN SOCIETY OF LIMNOLOGY OCEANOGRAPHY (ASLO) International Conference, held Savannah, GA. July 2004

SESSION Organizer

- 2005. Session Co-Organizer**, EUROPEAN GEOSCIENCES UNION (EGU) Annual Meeting, (Session Organizer: T. Battin, H. Lapin-Scott, A. Decho, M. Wagner), Vienna Austria, April 2005.
- 2001 Session Co-Organizer**: Special Session on “*BioGeochemistry of Marine Stromatolites: A 3 Billion Year Old Ecosystem*” at AMERICAN SOCIETY OF LIMNOLOGY AND OCEANOGRAPHY (ASLO), Annual Meeting, Santa Fe, NM (February); w/ co-organizer: Dr. P. Visscher.
- 2000 Session Co-Organizer**: International Specialist Conference on “*Extracellular Polymeric Substances*”, sponsored by the INTERNATIONAL WATER ASSOCIATION (IWA), held Mülheim, GERMANY (September); Co-Org.: H.-C. Flemming; T. Neu, A. Leis.
- 1998 Session Co-Organizer**: Special Session on “*Microbial Polymers in Marine Systems*” at AMER. SOC LIMNOLOGY OCEANOGRAPHY (ASLO) Ann. Meeting, Santa Fe, NM (Feb) w/co-org.: Dr. A. Alldredge.
- 1995 Session Co-Organizer**: Special Session on “*Microbial Biofilms*” at AMERICAN SOCIETY OF MICROBIOLOGY (ASM) Annual Meeting, New Orleans, LA (May); w/co-organizer: Dr. J. Lawrence.

CONFERENCE PAPERS AND PRESENTATIONS

(excludes INVITED and KEYNOTES listed above)

- Al-Ali M, Chandler S, **Decho AW**, Benicewicz BC. 2019. Designing “Sweet-Nanoparticles” as a novel strategy to combat antibiotic-resistant bacteria. AMERICAN CHEMICAL SOCIETY (ACS) Annual Mtg., Boston, MA.
- Prescott R, 'Iwakeli'i Tong E, Lo C-C, Gleanser C, Donachie SP, Chain PSG, Chan Y, Esibill D, **Decho AW**, Davenport K, Johnson S, Lee H. 2019. *O na Hoku no na kiu o ka lani*: Bridging Genomics Research and Culture-based Science Education through Astrobiology in Hawai'i. Oxford Nanopore Conference, London, U.K., Feb.
- Chanda A, Gummadidala, P.M., Chen, YP, Beauchesne, Miller K, Mitra C, Banaszek N, Velez-Martinez M, Moeller PDR, Ferry JL, **Decho AW**. 2016. Aflatoxin response metabolites from *Vibrio gazogenes*: a novel system of generation of aflatoxin inhibitors. WMFmeetsIUPAC, Winnipeg, Canada.
- Ganewatta MS, Chen YP, Miller K, **Decho AW**, Tang C. 2014. Sustainable antimicrobial coatings from resin acids. AMERICAN CHEMICAL SOCIETY (ACS) Annual Mtg. Vol. 247.
- Wang L, Chen YP, Cole M, Zhen Y, Benicewicz BC, **Decho AW**. 2014. Synthesis and characterization of water-soluble multi-functionalized magnetic nanoparticles via RAFT polymerization. AMERICAN CHEMICAL SOCIETY (ACS) Annual Mtg. Vol. 247.
- Ikuma K, A Madden, **AW Decho**, B Lau. 2014. Nanoparticle-Biofilm interactions at the interface: Importance of surface physicochemical characteristics. IWA PS2014 Specialist Conference: Adv. Particle Science and Separation: from Nanoscale and beyond. Sapporo, Japan.
- Wang L, Chen YP, **Decho AW**, Benicewicz BC. 2013. Preparation of dye-labeled poly(methacrylic acid) grafted silica nanoparticles for antimicrobial applications. USC Oakwood Products Poster Competition, Columbia, SC, February 22, 2013. PUBLISHED;
- Wang L, Chen YP, **Decho AW**, Benicewicz BC. 2013. Synthesis and characterization of dye-labeled

- poly(methacrylic acid) grafted silica nanoparticles. 2nd ACS POLY/PMSE Student Chapter (USC) Industry Panel Presentation, Columbia, SC, August 16th, 2013. PUBLISHED;
- Wang L, Miller KP, Viswanath A, Benicewicz BC, **Decho AW**. 2012. Nanoparticle-based antimicrobial paint. The Proving Ground Entrepreneurial Challenge, Columbia, SC, November 13, 2012. PUBLISHED;
- Wang L, Cash BM, Chen YP, **Decho AW**, Benicewicz BC. 2012. Synthesis and characterization of dye-labeled poly(methacrylic acid) grafted silica nanoparticles for drug delivery applications. 244th AMERICAN CHEMICAL SOCIETY (ACS) National Meeting, Philadelphia, PA, August 19-23, 2012. PUBLISHED;
- Wang L, Cash BM, Chen YP, **Decho AW**, Benicewicz BC. 2012. Synthesis and Characterization of Dye-Labeled Carboxylic Acid Coated Silica Nanoparticles for Drug Delivery Applications. IUPAC Macro2012, Blacksburg, VA, 6/24-28/12. PUBLISHED;
- Ferry JL, RL Frey, **AW Decho**. 2010. *Effects of hydroxyl radical mediated oxidation on N-acylhomoserine lactones used in microbial signaling: rates, products, and effects on signaling activity*. AMERICAN CHEMICAL SOCIETY (ACS) Annual Meeting, Boston, MA. August 2010. Abst. #26. PUBL.
- Ferry JL, RL Frey, JM Burns, TJ Shaw, CJ Murphy, P Sisco, **AW Decho**, GT Chandler, P Pennington, M Fulton. 2010. *Effects of surface charge on the partitioning of gold nanorods in saline estuarine mesocosms*. AMERICAN CHEMICAL SOCIETY (ACS) Annual Meeting, Boston, MA. Aug. Abst. #164.
- Frey R, Pellechia PJ, **Decho AW**, Ferry JL. 2010. Effects of pH, temperature, and salinity on microbial communication: speciation of autoinducer-2 in the aquatic environment. AMERICAN CHEMICAL SOCIETY (ACS) Annual Mtg. Vol. 239.
- Afroz, AN, Q Zaib, **AW Decho**, NB Saleh. 2010. *Role of nanoparticle geometry on nano-biointeractions: a quest to separate physics from chemistry*. AMERICAN CHEMICAL SOCIETY (ACS) Annual Meeting, Boston, MA. Aug. Abst. #131. PUBLISHED
- Visscher, PT, C Dupraz, **AW Decho**, BP Burns. 2010. *Mechanisms of biomineralization in hypersaline and open marine microbial mats*. INTERNATIONAL ASSOCIATION OF SEDIMENTOLOGY (IAS), 18th International Sedimentological Congress Meeting, Mendoza, Spain (Abstr.#561) PUBL.
- Decho, A.W.** et. al. *Using surface-functionalized nanoparticles as antibiotic delivery vehicles (ADVs) for penetrating biofilms: A sorptive sponge for nanoparticle accumulation under natural conditions*. 5th INTERNATIONAL CONFERENCE on ENVIRONMENTAL EFFECTS OF NANOPARTICLES, held August 22-26, 2010. Clemson, SC. PUBLISHED
- Decho, A.W.** 2010. Overview of Biofilms, EPS, and quorum sensing and their links to sediment biogeochemical processes. AMERICAN SOCIETY LIMNOLOGY OCEANOGRAPHY (ASLO)-AGU Annual Meeting, held Portland, OR. February.
- Decho, A.W.** *The biofilm way of life in marine systems*. AMERICAN SOCIETY OF MICROBIOLOGY (ASM) -SC Annual Chapter Meeting, held Charleston, SC. April.
- Frey R, **Decho AW**, Ferry JL. 2009. Correlation of the common water quality parameters pH, nitrate, phosphate, iron, total carbonate, and natural organic matter with multifactorial photodegradation. AMERICAN CHEMICAL SOCIETY (ACS) Annual Mtg abstract, vol. 237.
- Decho, A.W.** *Biofilms: A sorptive sponge for nanoparticle accumulation under natural conditions*. 4th INTERNATIONAL CONFERENCE on ENVIRONMENTAL EFFECTS OF NANOPARTICLES, held September 6-9, 2009. Vienna, AUSTRIA.
- Shaw TJ, Ferry JL, Hexel CR, Craig PS, Murphy CJ, Patrick S, Frey R, Chandler GT, **Decho AW**, Pennington P, Fulton M. 2008. ENVR 32- Analysis of Au nanorods in samples from an estuarine mesocosm study. AMERICAN CHEMICAL SOCIETY (ACS) Annual Mtg, Vol 235.
- Ferry JL, Craig PS, Frey R, Hexel CR, Shaw TJ, Murphy CJ, Patrick S, **Decho AW**, Chandler GT, Pennington P, Fulton M. 2008. ENVR 52- Partitioning of Au nanorods in saline estuarine mesocosms. AMERICAN

- CHEMICAL SOCIETY (ACS) Annual Mtg, Vol 235.
- Frey, RL, PJ Pellechia, **AW Decho**, JL Ferry. 2008. *Stability and molecular fate of DPD/Autoinducer 2 as a function of environmental factors pH, boric acid, temperature, and salinity*. AMERICAN CHEMICAL SOCIETY (ACS) Annual Meeting, held Boston, MA.
- Dupraz C, Braissant O, Gallagher K, Glunk C, **Decho AW**, Visscher PT. 2008. The role of EPS properties and turnover in carbonate mineral nucleation. Joint Mtg of GEOLOGICAL SOCIETY OF AMERICA (GSA) and Soil Science Society of America.
- Decho, AW**, PT Visscher, RS Norman, J Ferry, PL Ferguson. 2008. *Geochemical Challenges to quorum sensing in natural microbial mats*. NASA ABSCICOM (Astrobiology) Meeting, Session 18, held Santa Clara Convention Ctr. Santa Clara, CA April 14-18, 2008.
- Bey, B., E. Biers, **AW Decho**, RS Norman. 2008. *Identifying quorum sensing activities in a hypersaline mat assemblage using a functional metagenomics approach*. AMERICAN SOCIETY OF MICROBIOLOGY (ASM) Annual Meeting, Philadelphia, PA. N-225.
- Bey, B., E. Biers, M. Uyaguari, **AW Decho**, RS Norman. *An Efficient methods for extraction of high molecular weight DNA from microbial mats*. AMERICAN SOCIETY OF MICROBIOLOGY (ASM) Annual Meeting. Philadelphia, PA. (#Q549). 2008.
- Visscher PT, Dupraz C, Braissant O, **Decho AW**. 2008. *The Role of EPS Properties and Turnover in Carbonate Mineral Nucleation*. AGU (Abstr. # 150670) Session: Biofilms and Biomineralization: Evidence from ancient and modern systems. AMERICAN GEOPHYSICAL UNION (AGU) Ann. Mtg. Houston, TX. Oct.
- Braissant O, Gallagher KL, **Decho AW**, Przekop KM, Glunk C, Dupraz C, Visscher PT. 2008. *Characteristics and Turnover of Exopolymeric Substances (EPS) in a hypersaline microbial mat: Implication for preservation of microbial biosignatures in the rock record*. 8th EUROPEAN WORKSHOP ON ASTROBIOLOGY (EANA), held Neuchatel, SWITZERLAND.
- Braissant O, **Decho AW**, Przekop KM, Gallagher KL, Glunk C, Dupraz C, Visscher PT. 2008. *Turnover of natural exopolymeric substances: Interactions with calcium in lithifying microbial mats*. INTERNATIONAL Kalkowsky SYMPOSIUM: GEOBIOLOGY OF STROMATOLITES, Goetingen, GERMANY.
- Visscher, PT, LK Baumgartner, C Dupraz, O Braissant, KM Przekop, JF Stolz, JR Spear, **AW Decho**. 2008. *Biogeochemistry and diversity of open marine stromatolites and hypersaline lithifying microbial mats*. NASA ABSCICOM (Astrobiology) Meeting, Session 18, held Santa Clara Convention Ctr. Santa Clara, CA, April 14-18.
- Dupraz C, Braissant O, Glunk C, **Decho AW**, Visscher PT. 2008. *Influence of the EPS matrix on microbialite formation*. NASA ABSCICOM (Astrobiology) Meeting, Session 18, Santa Clara, CA, April.
- Frey R, **Decho AW**, Ferry JL. 2008. *Correlation of the common water quality parameters pH, nitrate, phosphate, iron, total carbonate, and natural organic matter with the multifactorial photodegradation of n-octanoyl-dl-homoserine lactone*. Abst. #12343525. AMERICAN CHEMICAL SOCIETY (ACS) Annual Meeting, March.
- Norman RS, Bey B, Visscher PT, **Decho AW**. 2008. *A functional genomic approach to understanding quorum sensing in the delta-proteobacteria, Desulfobivrio sp.* AMERICAN SOCIETY OF MICROBIOLOGY (ASM) Annual Meeting, Boston, MA. (#52 A)
- Pearman WF, Angel SM, **Decho AW**. 2007. *Surface enhanced Raman spectroscopy (SERS) for in-situ measurements of signaling molecules (e.g. autoinducers) relevant to bacterial chemical communication- quorum sensing*. 34th Annual Conference of Federation of Analytical Chemistry and Spectroscopy (FACSS), Memphis, TN. October.
- Decho AW**, Norman RS, Visscher PT, Ferguson LP, Ferry J. 2007. *Quorum sensing in natural microbial mats: a biogeochemical challenge*. AMERICAN SOCIETY OF MICROBIOLOGY (ASM)

- Special Conference on 'Cell-to-Cell Communication in Bacteria', October, Austin, TX.
- Decho AW**, Visscher PT, Norman RS, Kawaguchi T. 2007. *Microspatial Patterns and Chemical Communication between Bacteria in Microbial Mats*. AMERICAN SOCIETY OF MICROBIOLOGY (ASM) Special Conference on Microbial Biofilms, Quebec, Canada. March.
- Braissant O, Visscher PT, **Decho AW**. 2007. *Exopolymeric substances in hypersaline Microbial mats: their potential role in calcium carbonate mineral precipitation*. GEOLOGICAL SOCIETY OF AMERICA (GSA) Annual Meeting, Denver, CO October, Session 126: Perspectives in Redox Geochemistry and Microbial Processes (Vol. 39, No. 6)
- Braissant O, Przekop K, **Decho AW**, Verrecchia E, Dupraz C, Glunk C, Gallagher K, Visscher PT. 2007. *Sulfate reducing bacteria exopolymers: their influence on calcium carbonate mineral precipitation*. NASA ASTROBIOLOGY CONFERENCE (March) Vol. 6 (1): 247-285.
- Norman RS, Bey B, Visscher PT, **Decho AW**. 2007. *A functional genomic approach to understanding quorum sensing in the Delta Proteobacteria, Desulfovibrio sp.* AMERICAN SOCIETY OF MICROBIOLOGY (ASM) Special Conference -Microbial Biofilms, Quebec, Canada, Oct.
- Decho AW**. 2007. *Quorum sensing in natural microbial mats: a biogeochemical challenge*. AMERICAN SOCIETY OF MICROBIOLOGY (ASM) Special Conference on 'Cell-to-Cell Communication in Bacteria', October, Austin, TX.
- Decho AW**. 2007. *Microspatial Patterns and Chemical Communication between Bacteria in Microbial Mats*. AMERICAN SOCIETY OF MICROBIOLOGY (ASM) - Special Conference on Microbial Biofilms, Quebec, Canada.
- Braissant O, Przekop KM, **Decho AW**, Verrecchia EP, Dupraz C, Glunk C, Gallagher K, Visscher PT. 2006. *Exopolymers from sulfate-reducers: their role in precipitation of carbonate minerals*, Societe Geologique de France, Societe Francaise de mineralogie et crystallographie, Joint Earth Sciences Meeting, Dijon, France.
- Gallagher K, Przekop KM, Baumgartner LK, Carson E, Blackshear A, Braissant O, **Decho AW**, Vasconcelos C, McKenzie JA, Visscher PT. 2006. *Lithification in Microbial mats: The Role of the Sulfur Cycle*. CONFERENCE ON ASTROBIOLOGY SCIENCE. Washington, DC.
- Visscher PT, Dupraz C, Reid RP, Stolz JF, **Decho AW**. 2004. *Decoupling of coupled element cycles in early microbial ecosystems. Origin of biogenic signatures in the rock record?* Workshop on 'Microbialites and microbial communities in sedimentary systems'. Paris, France, (September). Published abstract in "*Microbialites et communautés microbiennes dans les systèmes sédimentaires*. G. Camoin and P. Gautret (eds). Association des Sedimentologues Français (ASF), Societe Geologie de France, Paris, France, pp. 109-110 (ISBN0990-3925).
- Decho AW**. 2004. *Marine Stromatolites, the earth's earliest biofilms*. AMERICAN SOC. OF MICROBIOLOGY (ASM) Special Conference on 'Biofilms', Victoria, BC (November)
- Petrisor AI, Kawaguchi T, **Decho AW**. 2003. An introduction to bacterial geography. Proceed. 27th Ann. Congress of American-Romanian Academy of Arts and Sciences mtg.
- Reid RP; Visscher PT, **Decho AW**, Marinelli R, Stolz J. 2003. *Biocomplexity of Marine Stromatolites: Biogeochemical Cycling, Microbial Population Dynamics, and Mineral Formation in a Three Billion Year Old Ecosystem*. Biocomplexity PI meeting, Washington DC, Sept.
- Kawaguchi T, **Decho AW**. 2001. *The role of extracellular polymeric substances on CaCO₃ precipitation in marine stromatolites*. (Abstract # 768) AMERICAN SOCIETY OF LIMNOLOGY & OCEANOGRAPHY (ASLO), Albuquerque, NM. February.
- Hoskins DL, Stancyk SE, **Decho AW**, Lewis VP, Baynes J. 2001. Digestion of biofilm carbohydrates by the deposit-feeding brittlestar *Amphipholis gracillima* (Stimpson)(Ophiuroidea: Amphiuroidae).

- Proceedings of the 10th International Conference, Dunedin, UK.
- Decho AW**, Kawaguchi T. 2000. "*Microbial Processes and Calcification in Marine Stromatolites: The Earth's Earliest Biofilms*" AMERICAN SOCIETY OF MICROBIOLOGY (ASM), Special Conference on Biofilms, Big Sky, Montana (July). (POSTER)
- Decho AW**, Kawaguchi T. 2000. "*In Situ Microspatial Imaging of Bacteria and EPS within Marine Sediments*" AMERICAN SOCIETY OF MICROBIOLOGY (ASM), Special Conference on Biofilms, held at Big Sky, Montana (July). (POSTER)
- Stolz J, Visscher PT, **Decho AW**, Reid RP. 2000. "*Community Structure in a Modern Marine Stromatolite*" INTERNATIONAL SYMPOSIUM ON PHOTOTROPHIC PROKARYOTES, Barcelona, SPAIN (August).
- Noble, PA., W Johnson, C Roper, M Kelly, M Hoffman, M Dantzler, S Thieben, ST Lindsay, H Dang, CR Lovell, **AW Decho**, J Tour, M Fletcher. 1999. Abstract #11434 Q-65; 98th AMERICAN SOCIETY OF MICROBIOLOGY (ASM), Atlanta, GA. (POSTER)
- Reid, RP, B. Bebout, **AW Decho**, IW MacIntyre, H. Paerl, J. Pinckney, L. Prufert-Bebout, T. Steppe, P. Visscher. 1999. "*Microbial Heaven in a Fringing Reef Complex, Highborne Cay, Bahamas*. (POSTER).
- Schlekat, C.E., K.E. Wommack, **A.W. Decho**, G.T. Chandler. 1998. *Phylogenetic Characterization of an Estuarine Bacterial isolate and Compositional Analysis of its metal binding* EPS. AMERICAN SOCIETY OF MICROBIOLOGY (ASM) Annual Meeting, Miami, FL. [POSTER]
- Varlik, B., **A.W. Decho**. 1998. *Effects of Polymer-transition metal interactions on the survival and bioavailability of pathogenic marine and freshwater bacteria in estuaries*. SOCIETY OF ENVIRONMENTAL TOXICOL. CHEM. (SETAC) Annual Mtg., Charlotte, NC. [POSTER]
- Schlekat, C.E., **A.W. Decho**, G.T. Chandler. 1998. *Modelling uptake of Ag, Cd, and Zn by the estuarine amphipod Leptocheirus plumulosus from multiple uptake routes*. SOCIETY OF ENVIRONMENTAL TOXICOLOGY AND CHEMISTRY (SETAC) Annual meeting, Charlotte, NC. [POSTER]
- Decho, A.W.** 1997. *Localization of extracellular enzyme activities within microbial biofilms*. AMERICAN SOCIETY OF LIMNOLOGY AND OCEANOGRAPHY (ASLO) Annual Meeting. Santa Fe, NM (February).
- Schlekat, C.E., **A.W. Decho**, G.T. Chandler. 1997. *Role of microbial extracellular polymeric substances in the bioavailability of metals in surficial estuarine sediments*. INTERNATIONAL MEETING OF SOCIETY OF ENVIRONMENTAL TOXICOLOGY CHEMISTRY (SETAC). Amsterdam, THE NETHERLANDS. April 1997.
- Reid, R.P., P. Visscher, J. Pinckney, H. Paerl, **A.W. Decho**, B. Bebout, M. Feldmann, I. MacIntyre. 1997. *Microbial-mediated lithification in Bahamian Stromatolites*. INTERNATIONAL ASSOCIATION OF SEDIMENTOLOGISTS.- Workshop of Microbial Mediation of Carbonate Diagenesis. Chichilianne, FRANCE (Sept. 97)
- Reid, R.P., P. Visscher, J. Pinckney, H. Paerl, **A.W. Decho**, B. Bebout, M. Feldmann, I. MacIntyre. 1997. *A geomicrobiological investigation of modern marine stromatolites at Highborne Cay, Bahamas*. INTERNATIONAL GEOLOGICAL CORRELATION PROGRAM (IGCP) 380: Microbialites- Processes and Products, Cracow, POLAND. (Sept)
- Reid, R.P., J. Pinckney, P. Visscher, H. Paerl, **A.W. Decho**, B. Bebout, M. Feldmann, I. MacIntyre. 1997. *Microbial-mediated lithification of cyanobacterial mats forming modern marine stromatolites in the Bahamas*. 97th Annual Meeting, AMERICAN SOCIETY OF MICROBIOLOGY (ASM), Miami, FL (Session N-77, p. 394)
- Reid, R.P., B. Bebout, H. Paerl, **A.W. Decho**, M. Feldmann, I. MacIntyre, H. Paerl, J. Pinckney, P. Visscher. 1997. *Formation of lithified micritic laminae in modern marine stromatolites: a geomicrobiological investigation*. GEOLOGICAL SOCIETY OF AMERICA Annual Meeting.
- Decho AW**. 1995. *Modifications in digestive processing strategies to reduce toxic trace metal uptake in a marine bivalve*. Benthic Ecology Meetings, Rutgers University, NJ.

- Schlekat CE, **Decho AW**, Chandler GT. 1995. Sorption of organic compounds to microbial extracellular polymers: potential vector for bioaccumulation of sediment-associated contaminants. SETAC (Society of Environ. Toxicol. Chem) Mtg. Pensacola, FL.
- Decho AW**, Luoma SN. 1994. Modification in digestive processing strategies to reduce toxic trace metal uptake in a marine bivalve. SETAC (Society of Environ. Toxicol. Chem) Mtg. Pensacola, FL.
- Decho AW**. 1993. "Microbial Extracellular Polymers in Benthic Food Webs." American Soc. of Microbiology Annual Meeting, Atlanta, GA.
- Luoma SN, Fisher N, **Decho AW**, Griscom S, Brown C, Wang W, 1993. Bioavailability of cadmium from particulate sources to bivalves. 14th Annual Mtg (SETAC)- Ecological Risk Assessment.
- Decho AW**, Luoma SN. 1992. Geopolymers (humic and fluvic acids): sink trophic transfer-vehicle for metals to bivalves. 13th Annual Mtg Society for Environ. Toxicology and Chemistry (SETAC). Seattle, WA.
- Decho AW**, Luoma SN. 1990. Mucus-exopolymer utilization by two bivalves with different feeding strategies. American Geophysical Union Annual Mtg. EOS Transactions 71, CONF-9002174.

VISITING RESEARCHER

- 2014 Pacific Northwest National Laboratories (PNNL)**, Richland, Washington (2 wks)
- 2013 Scottish Oceans Institute (SOI)**, University of St. Andrews, **SCOTLAND** (4 mos)
- 1995-2012 Bahamas** (Carribbean Marine Research Center (CMRC) at Lee Stocking Island; Highborne Cay; San Salvador Island) to conduct NSF-sponsored research on marine microbial communities.
- 1996 Digital Instruments, Inc., Santa Barbara, CA** to conduct biofilm research using atomic-force microscopy. (2 wks)
- 1991 Catalina Island Marine Science Center**, (University of Southern California) for an Intensive 6-week techniques course called 'Molecular Biology & Biochemistry of Marine Organisms', sponsored by Office of Naval Research and USC. (6 wks)
- 1989 US Geological Survey, Menlo Park, CA**. Post-doctoral work on bioavailability of metals to marine animals. (5 yrs)
- 1987-88 CSIRO Marine Laboratories, Brisbane, AUSTRALIA**. Post-doctoral work to examine trophic availability of microbial EPS to marine consumer animals. (1 yr)
- 1986 University of Alaska-Juneau**. Research associate for Dr. T. Shirley for study entitled "Association of Primary Productivity & Recruitment in Subarctic Ecosystems" (APPRISE) investigating benthic-pelagic coupling processes.
- 1983 Marine Biological Laboratory, Woods Hole, Mass.**, Summer fellowship for graduate 'Microbial Ecology course and research at MBL. (10 wks)
- 1980 Duke University Marine Laboratory**. Summer course "Marine Ecology", and research via H. Roy Wilson Fellowship (Ohio University) (10 wks)
- 1978 Bermuda Biological Station for Research**. Summer course in Oceanic Island Ecology via scholarship Award (Eastern Conn. State Univ.) (3 wks)

MEMBER:

- 2008-present. Australian Centre for Astrobiology**- Associate Member; nominated by Dr. Brendan Burns (Australian Centre for Astrobiology, University of New South Wales, Sydney, Australia)

SCHOLARLY SERVICES

CURRENT STUDENTS/POSTDOCTORAL ASSOCIATES

IN-PROGRESS:

▪ **Post-doctoral Associate:**

Dr. Rebecca Prescott. NSF Post-Doctoral Fellow. *Research Topic*: QS-mediated changes in gene expression in microbial mats of extreme environments.

Dr. Amjed Alabresm. Post-Doctoral Researcher. Topic: Nanoparticle influences of Antibiotic Resistance.

▪ **Doctoral:**

Mr. Ryan Leighton, *Dissertation title*: Vibrio sp. interactions with ocean micro- and nano-plastics as a vehicle for disease transfer.

Ms. Savannah Chandler Wichter, *Dissertation title*: Understanding and facilitating the uptake of nanoparticles by bacteria; joint with Dept. Chemistry and Biochemistry;

▪ **Honors College Undergraduate Theses:**

Ms Grace Smith, *Thesis Title*: *Lessons Learned for the American Public Health Response: A Critical Analysis of the H1N1 vs. COVID-19 Federal Response.* *Defense*: February 20, 2021

Ms. Tessa Cox, *Thesis Title*: *Postnatal maternal fecal microbiota transplantation (FMT) as an effective practice for establishing gut microbiome health in babies born through cesarean section (CS).* *Defense*: April 26, 2021.

DISSERTATIONS COMPLETED:

Dr. Kristen Miller, *Dissertation Title*: Bacterial communication and its role as a target for nanoparticle-based antimicrobial therapy. *Defense*: March 6, 2015

Dr. Adriana Bejarano *Dissertation Title*: Establishing a link between pesticide bioavailability and toxicological response in marine animals. 2004

Dr. Alexandru Petrisor *Dissertation Title*: Quantifying multiple scales of spatial variability in biofilms using GIS/Image analysis approaches. 2004

Dr. Paul Pennington, *Dissertation Title*: The replicated modular estuarine mesocosm: assessing direct and indirect effects on pesticide exposures. *Defense*: 2002.

(**Recipient of Best Dissertation Award – Department of Environmental Health Sciences 2002*)

Dr. Christian Schlekat, *Dissertation Title*: Assimilation of metals by sediment-ingesting invertebrates: Effects of natural sediment qualities and intrinsic metal characteristics, *Defense*: 1998.

(**Funded by E.P.A.' STARR FELLOWSHIP Program*).

(* *Recipient of "BEST DISSERTATION AWARD- SCHOOL OF PUBLIC HEALTH 1998.*

Dr. Dionne Hoskins, (Co-Chair), *Dissertation Title*: Utilization of microbial exopolymers by a deposit-feeding brittlestar: trophic and toxicological implications. *Defense*: 1999.

STUDENT MASTERS THESES/PRACTICA: COMPLETED:

Mr. Amjed Alabresm. *Thesis Title*: Diagnosis of viral and bacterial infection. (Defense: May 2018)

Ms. Shonda Jones *Thesis Title*: Uptake of Nanoparticles by *Vibrio gazogenes*.
(Defense: November 12, 2015)

Mr. Brian Nevius. *Thesis Title*: Sorption of charged nanoparticles to aquatic biofilm systems.
(Defense: April 2009)

Ms. Tamara Kay. *Thesis Title*: Quorum sensing in the bacterial biofilms of marine stromatolites.
(Defense: July 2007)

Ms. Erin Beckman. *Thesis Title*: A Quantum-Dot Approach to sensitive pathogen detection on marine copepods. (Defense: Nov 2006)

- Ms. Katrina Grosso.** *Thesis Title:* Assessment of antibiotic resistant *E. coli* bacteria in a National Estuarine Research Reserve Sanctuary (NERRS)- North Inlet, SC. *Defense:* 11/03
- Mr. J. Darius Soltes,** *Thesis Title:* Quantitative characterization of natural microbial exopolymers (EPS) and associated spectroscopic properties. *Defense:* October 7, 1998
- Ms. Monica Hoffman,** *Thesis Title:* Proteolytic enzymes secreted by the marine bacterium *Pseudomonas atlantica*. *Defense:* November 12, 2001
- Mr. Allen Southerland,** *Thesis Title:* Physiological responses of estuarine phytoplankton to photo-induced fluoranthene toxicity. *Defense:* March 15, 2001.
- Mr. Robert Salters,** *Thesis Title:* The Phenotypic Expression of Alpha-1 Integrin Deletion in Neonatal Rat Myocytes", conducted in conjunction with USC School of Medicine. *Defense:* March 17, 2000.
- Ms. Rebecca Ellin,** *Thesis Title:* Planktonic Abundance and Dispersal of the Oyster Parasite *Perkinsus marinus*". *Defense:* June 30, 2000.
- Ms. Pavani Vasikarla,** MPH-Practicum. *Practicum Title :* Evaluation of Section 319 (NPS-Non Point Source) Projects for Pollutant Load Reductions. *Practicum Exam :* Nov 22, 2004.

POST-DOCTORAL ASSOCIATES COMPLETED:

- Dr. Kenneth Browne,** *Research Topic:* Experimental analysis of waterborne chemical cues as agents regulating larval settlement. (co-advise w/ R.K. Zimmer-Faust) (1995-96)

INTERNATIONAL VISITING- GRADUATE/ UNDERGRADUATE STUDENT THESES RESEARCH

(research conducted & thesis in Decho laboratory)

- 2016 **Ms. Indra Monsees.** Visiting Senior Thesis for University of Duisburg/Essen, **GERMANY.**
Bachelor Thesis: Alteration of antibiotic production by a bacterium through exposure to novel stressors. (4 mo.)
- 2015 **Mr. Santhosh Kumar** Visiting Master's Thesis, University of Duisburg/Essen, **GERMANY.**
Bachelor Thesis: The role of archaeal EPS in the formation of microbial glass and the preservation of active chemical signals during desiccation. (6 mo.)
- 2012-13 **Mr. Hendrik Noll,** Visiting Senior Thesis for University of Duisburg/Essen, **GERMANY.**
Bachelor Thesis: The role of bacterial extracellular vesicles in preservation of active chemical signals and extracellular enzymes during desiccation. (4 mo.)
2012. **Ms. Tanja Knipping,** Visiting Senior Thesis for University of Duisburg/Essen, **GERMANY.**
Bachelor Thesis: The role of archaeal EPS in the formation of microbial glass and the preservation of active chemical signals during desiccation. (4 mo.)
2010. **Ms Stefanie Sand,** Visiting Senior Thesis for University of Duisburg/Essen, **GERMANY.**
Bachelor Thesis: Isolation of bacteria and archaea from hypersaline ponds (Bahamas): Understanding potential interactions through signaling and antibiotics. (4 mo)
2010. **Mr. Maik Szendy,** Visiting Senior Thesis for University of Duisburg/Essen, **GERMANY.**
Bachelor Thesis: Nanoparticle Stimulation of Antibiotic production by bacteria. (4 mo)
2009. **Ms. Cornelia Rudolph:** Visiting Senior Thesis for University of Duisburg/Essen, **GERMANY.**
Bachelor Thesis: Quorum sensing in Archaea. (4 mo)
2007. **Ms. Falcia Goh,** Visiting Ph.D. student from University of New South Wales, **AUSTRALIA.**

Funded by prestigious *NASA Planetary Biology Fellowship!* (3 mo.)

2001. **Ms. Anneli Widenfalk**, Visiting PhD Student from University of Uppsala, SWEDEN.

Ms. Widenfalk conducted research project addressing *Bioavailability of pesticides to marine mollusks*". (5 mo)

1996. **Ms. Henriette Selck**, Roskilde University, DENMARK. As a Master's candidate, she conducted research in my laboratory on bioavailability of metals to marine animals. (5 mo)

UNDERGRADUATES (USC):

Ms. Tessa Cox, USC Honors College, Arnold School of Public Health. 2020- present;

Ms. Grace Smith, USC Honors College, Arnold School of Public Health. 2019-present;

Mr. Pranav Patel, USC Honors College, and Dept. Chemistry Biochemistry,

Mr. Steven Glenn, USC Honors College, and Dept. Chemistry Biochemistry, Title: Isolation of novel antibiotics and complexation to nanoparticles. 2013.

Mr. Jacob Nelson, Department of Chemistry and Biochemistry, Title: Isolation of Microbial Glass from Microbial Mat EPS. 2010.

Mr. Adam Hoyt, USC Honors College, Senior Thesis Title: Effects of microscale pH changes on the sorption of metals to exopolymers in marine microbial biofilms. Defense: July 1997.

Mr. Max Habicht- laboratory assistance experience

SERVICE: Some Examples of Service Served.

University

- Provost Committee on University Research Space Utilization. 2020-present
- Provost Committee Evaluation of ASPH Dean – 2013-2014
- CHAIR, Search Committee for USC SMART-STATE Professorship in Environmental NanoScience and Risk Assessment; (2010-2011)
- CHAIR, USC Faculty Grievance Committee; (2007-2010)
- Member, 'USC Educational Foundation Research Award for Health Sciences' Committee 2010-2013.
- Marine Sciences Associate Faculty and Graduate Committee; (1995-2007)
- School of the Environment Faculty Search Committee; (2010)
- ASPH Dean Search Committee; (2010)

Arnold School of Public Health (ASPH)

- CHAIR, Research Advisory Committee.
- ASSOCIATE DEAN FOR RESEARCH, Oct 2014-present;
- CHAIR, Tenure and Promotions Committee (2007-2010);
- CHAIR, ASPH Research Award;
- Member Tenure and Promotions Committee (1998-present)
- Curriculum Committee Member;
- Research Faculty Evaluation Committee;
- Teaching Peer-Reviewer;
- Post-Tenure Review Committee;
- Information Technology and Resources Committee (2009-2012);

Department

ALAN WILLIAM DECHO, Ph.D.

- Director of Graduate Studies; (2011-present)
- Associate Chair; (2010-present)
- *CHAIR*, New Faculty Search Committee 1, (2008-2009)
- *CHAIR*, New Faculty Search Committee 2, (2010-2011)
- *CHAIR*, New Faculty Search Committee 3, (2011-2012)
- *CHAIR*, New Faculty Search Committee 4, (2011-2012)