

Dr. Jeffrey C. Drazen

Professor of Oceanography

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Education

- 2000 **Ph.D. in Marine Biology**
Scripps Institution of Oceanography, University of California San Diego, California
- 1993 **B.A. in Biology and Marine Science**
University of San Diego, San Diego, California

Professional Positions

- 2014 – pres **Professor**, Department of Oceanography, University of Hawaii, Manoa
- 2010 – 2016 **Chair, Biological Oceanography Division**, University of Hawaii, Manoa
- 2009 – 2014 **Associate Professor**, Department of Oceanography, University of Hawaii, Manoa
- 2004 – 2009 **Assistant Professor**, Department of Oceanography, University of Hawaii, Manoa
- 2007 – 2015 **Affiliate Faculty**, Hawaii Institute of Marine Biology, University of Hawaii, Manoa
- 2001 – 2004 **Postdoctoral Research Fellow**, Monterey Bay Aquarium Research Institute
- 1999 – 2000 **Instructor**, Biology Department, University of San Diego
- 1994 – 2000 **Research Assistant**, Scripps Institution of Oceanography
- 1993 – 1994 **Research Assistant**, Biology Department, University of San Diego

Awards

- 2012 ONR Summer Faculty Fellow
- 2015 Klaus Wyrski Graduate Teaching Excellence Award
- 2015 JIMAR Senior Fellow
- 2016 UH Chancellor's Citation for Meritorious Teaching

Research

Publications

Refereed publications in scholarly journals (*graduate student in my group, # undergraduate student in my group, ^postdoc in my group)

*Woodworth-Jefcoats PA, Polovina JJ, **Drazen JC** (2018) Synergy between oceanographic variability, fishery expansion, and longline catch composition in the central North Pacific. *Fishery Bulletin* 116: 218-239.

Zhang W, Tian R-M, Sun J, Bougouffa S, Ding W, Cai L, Lan Y, Tong H, Li Y, Jamieson AJ, Bajic VB, **Drazen JC**, Bartlett D, Qian P-Y (2018) Water depth and host association give rise to the highly reduced genome of an amphipod gut bacterium. *mSystems* 3 (3)

- *Gerringer ME, Andrews AH, Huss GR, Nagashima K, Popp BN, Gallo ND, Clark MR, Linley TD, Jamieson AJ, **Drazen JC** (2018) Life history of abyssal and hadal fishes from otolith growth zones and oxygen isotopic compositions. *Deep-Sea Res I* 132:37-50
- Giorli G, **Drazen JC**, Neuheimer AB, Copeland A, Au W (2018) Deep-sea animal density and size estimated using a Dual-frequency IDentification SONar (DIDSON) offshore the island of Hawaii. *Prog Oceanogr* 160:155-166
- *Gloeckler K, Choy CA, Hannides CCS, Close H, Goetze E, Popp BN, **Drazen JC** (2018) Amino acid – compound specific stable isotope analysis of micronekton around Hawaii reveals the importance of suspended particles as an important nutritional source in the meso/bathypelagic. *Limnol Oceanogr*. doi:doi: 10.1002/lno.10762
- Lemaire B, Karchner SI, Goldstone JV, Lamb DC, **Drazen JC**, Rees JF, Hahn ME, Stegeman JJ (2018) Molecular adaptation to high pressure in cytochrome P450 1A and aryl hydrocarbon receptor systems of the deep-sea fish *Coryphaenoides armatus*. *Biochimica et Biophysica Acta (BBA) - Proteins and Proteomics* 1866:155-165. doi:doi.org/10.1016/j.bbapap.2017.06.026
- ^Sackett D, **Drazen JC**, Popp B, Choy CA, Blum J, Johnson MW (2017) Carbon, nitrogen and mercury isotope evidence for the biogeochemical history of mercury in marine bottomfish. *Environmental Science & Technology* 51(23): 13976-13984
- *Gerringer ME, Linley TD, Jamieson AJ, Goetze E, **Drazen JC** (2017) *Pseudoliparis swirei*: A newly-discovered hadal liparid (Scorpaeniformes: Liparidae) from the Mariana Trench. *Zootaxa* 4358:161-177
- Wong CC, **Drazen JC**, Callan CK, Korsmeyer KE (2017) Hypoxia tolerance in coral-reef triggerfishes (Balistidae). *Coral Reefs* 37:215-225. doi:10.1007/s00338-017-1649-7
- *Gerringer ME, **Drazen JC**, Linley TD, Summers AP, Jamieson AJ, Yancey PH (2017) Distribution, composition, and functions of gelatinous tissues in deep-sea fishes. *Royal Society Open Science* 4, doi:10.1098/rsos.171063
- Amon D, Ziegler AF, **Drazen JC**, Grisschenko AV, *Leitner AB, Lindsay DJ, Wicksten MK, Voight JR, Young CM, Smith CR (2017) Megafauna of the UKSRL exploration contract area and eastern Clarion-Clipperton Zone in the Pacific Ocean: Annelida, Arthropoda, Bryozoa, Chordata, Ctenophora, Mollusca. *Biodiversity Data Journal* 5: e14598
- Sutton, T.T., Clarke, M.R., Dunn, D.C., Halpin, P.N., Rogers, A.D., Guinotte, J., Bograd, S.J., Angel, M.V., Perez, J.A.A., Wishner, K., Haedrich, R.L., Lindsay, D., **Drazen, J.C.**, Vereshchaka, A., Piatkowski, U., Morato, T., Błachowiak-Samołyk, K., Robison, B.H., Gjerde, K.M., Pierrot-Bults, A., Bernal, P., Reygondeau, G., Heino, M. (2017). A global biogeographic classification of the mesopelagic zone. *Deep Sea Research I* 126: 85-102.
- Oyafuso, Z.S., **Drazen, J.C.**, ^Moore, C.H., Franklin, E.C. (2017). Habitat-Based Species Distribution Models of Hawaiian Deep-Slope Fishes. *Fisheries Research* 195: 19-27.
- *Gerringer, M.E., **Drazen, J.C.**, Yancey, P.H. (2017) Metabolic enzyme activities of abyssal and hadal fishes: pressure effects and a re-evaluation of depth-related changes. *Deep Sea Research I* 125: 135-146.
- *Leitner, A., Neuheimer, A., #Donlon, E., Smith, C.R., **Drazen, J.C.** (2017) Environmental and bathymetric influences on abyssal scavenging communities of the Clarion Clipperton zone. *Deep Sea Research I* 125: 65-80.
- ^Sackett D, Kelley CD, **Drazen JC** (2017) Spilling over deepwater boundaries; evidence of spillover from two deepwater protected areas in Hawaii. *Marine Ecology Progress Series* 568: 175-190.

- *Gerringer, M.E., Popp, B.N., Linley, T.D., Jamieson, A.J., **Drazen, J.C.** (2017) Feeding ecology of hadal fishes; Comparative analyses of stomach contents and compound specific stable isotopes of individual amino acids. *Deep Sea Research I* 121: 110-120.
- Linley, T.D., Stewart, A., McMillan, P., Clark, M., *Gerringer, M., **Drazen, J.C.**, Fujii, T., Ichino, M.C., Jamieson, A.J. (2017) Bait attending fishes of the abyssal zone and hadal boundary: community structure, functional groups and species distribution in the Kermadec, New Hebrides and Mariana trenches. *Deep Sea Research I* 121:38-53.
- *Woodworth-Jefcoats, P., Polovina, J., **Drazen, J.C.** (2017). Climate change is projected to reduce carrying capacity in North Pacific marine ecosystems. *Global Change Biology* 23(3):1000-1008.
- Drazen, J.C.**, Sutton, T.T. (2017). Dining in the deep: The feeding ecology of deep-sea fishes. *Annual Reviews in Marine Science* 9: 337-366.
- Hetherington, E.D., Olson, R.J., **Drazen, J.C.**, Lennert-Cody, C.E., Ballance, L.T., Kaufmann, R.S., Popp, B.N. (2016). Spatial food-web structure in the eastern tropical Pacific Ocean based on compound-specific nitrogen isotope analysis of amino acids. *Limnology and Oceanography* 62: 541-560.
- ^Nunnally C, Friedman J, **Drazen J** (2016) Respiration of hadal invertebrates measured in situ in the Kermadec trench. *Deep Sea Research I* 118, 30-36.
- *Fernandez-Arcaya, U., **Drazen, J.C.**, Murua, H., Ramírez-Llodra, E., Bahamon, N., Recasens, L., Rotllant, G., Company, J.B. (2016). Bathymetric gradients of fecundity and egg size in fishes: a Mediterranean case study. *Deep Sea Research I* 116, 106-117.
- Gaither, M.R., Violi, B., Gray, H.W., Neat, F., **Drazen, J.C.**, Grubbs, D., Roa-Varón, A., Sutton, T., Hoelzel, A.R. (2016). Depth as a driver of evolution in the deep sea: insights from grenadiers (Gadiformes: Macrouridae) of the genus *Coryphaenoides*. *Marine Ecology Progress Series* 104, 73-82.
- Linley TD, *Gerringer ME, Yancey PH, **Drazen JC**, Weinstock CL, Jamieson AJ (2016) Fishes of the hadal zone including new species, in situ observations, depth records of Liparidae. *Deep-Sea Res I* 114: 99-110.
- ^Moore CH, **Drazen JC**, Radford B, Kelley C, Newman SJ (2016) Improving essential fish habitat designation to support sustainable ecosystem-based fisheries management. *Marine Policy* 69: 32-41
- Misa, W.F.X.E., Richards, B.L., DiNardo, G.T., Kelley, C.D., Moriwake, V.N., **Drazen, J.C.** (2016). Evaluating the effect of soak time on bottomfish abundance and length data from stereo-video surveys. *Journal of Experimental Marine Biology and Ecology* 479: 20-34
- Gove JM, McManus MA, Neuhemier AB, Polovina JJ, **Drazen JC**, Smith CR, Merrifield MA, Freidlander AM, Ehse JS, Young C, Dillon AK, Williams GJ (2016) Near-island biological hotspots in barren ocean basins. *Nature Communications* 7:10581
- ^Sackett, D., **Drazen, J.C.**, *Choy, C.A., Popp, B., Asato, A., Pitz, G.L. (2015). Mercury sources and trophic ecology and for Hawaiian bottomfish. *Environmental Science & Technology* 49(11):6909-6918.
- Abecassis M, Polovina J, Baird RW, Copeland A, **Drazen JC**, Domokos R, Oleson E, Jia Y, Schorr GS, Webster DL, Andrews RD (2015) Characterizing a foraging hotspot for short-finned pilot whales and Blainville's beaked whales off the west side of the Island of Hawai'i with tagging and oceanographic data. *PLOS One* 10(11): e0142628. doi:10.1371/journal.pone.0142628

- *Choy CA, Popp BN, Hannides CCS, **Drazen JC** (2015) Trophic structure and isotopic depth gradients within a pelagic fish assemblage of the central North Pacific Subtropical Gyre ecosystem. *Limnology and Oceanography* 60 (4): 1156-1171
- Bradley, C. J., N. J. Wallsgrove, *C. A. Choy, **J. C. Drazen**, #D. K. Hoen, E. D. Hetherington, and B. N. Popp (2015). Trophic position estimates of teleosts using amino acid compound specific isotopic analysis. *Limnology and Oceanography: Methods* 13 (9): 476-493.
- Drazen JC**, *Friedman JR, *Condon N, #Aus E, *Gerringer ME, Keller AA, Clarke E (2015) Enzyme activities of demersal fishes from the shelf to the abyssal plain. *Deep-Sea Res I* 100: 117-126.
- Ichino MC, Clark MR, **Drazen JC**, Jamieson A, Jones DOB, Rowden AA, Shank TM, Yancey PH, Ruhl HA (2015) The distribution of benthic biomass in hadal trenches: a modelling approach to investigate the effect of surface primary production and lateral organic sediment transport. *Deep-Sea Res I* 100: 21-33
- Hannides, C. C. S., **J. C. Drazen**, B. N. Popp, and *C. A. Choy (2015). Mesopelagic zooplankton metabolic demand in the North Pacific Subtropical Gyre. *Limnology and Oceanography* 60:419-428.
- Friedlander AM, Stamoulis KA, Kittinger JN, **Drazen JC**, Tissot BN (2014) Understanding the scale of marine protection in Hawai'i: from community-based management to the remote northwestern Hawaiian Islands Marine National Monument. *Advances in Marine Biology* 69: 153-203.
- #Hoen, D.K., Kim, S.L., Hussey, N.E., Wallsgrove, N.J., **Drazen, J.C.**, Popp, B.N. (2014) Amino acid ¹⁵N trophic enrichment factors of four large carnivorous fishes. *Journal of Experimental Biology* 453: 76-83.
- Stein, D.L., **Drazen, J.C.** (2014). *Paraliparis hawaiiensis*, a new species of snailfish (Scorpaeniformes: Liparidae) and the first described from the Hawaiian Archipelago. *Journal of Fish Biology* 84(5): 1519-1526.
- Robison BH, Seibel BA, **Drazen JC** (2014). Deep-sea octopus conducts the longest-known egg-brooding period of any animal. *PLoS ONE* 9(7): e103437. doi:10.1371/journal.pone.0103437
- Yancey, P.H., *Gerringer, M.E., **Drazen, J.C.**, Rowden, A.A., Jamieson, A.J. (2014). Marine fish may be biochemically constrained from inhabiting deepest ocean depths. *Proceedings of the National Academy of Sciences, USA*. 111:4461-4465.
- ^Sackett, D., K., **Drazen, J.C.**, Moriwake, V.M., Kelley, C.D., Schumacher, B.D. and Misa, W.F.X.E. (2014). Marine protected areas for deepwater fish populations: an evaluation of their affects in Hawaii. *Marine Biology* 161: 411-425.
- Barry, J.P., Buck, K.R., Lovera, C., Brewer, P.G., Seibel, B.A., **Drazen, J.C.**, Tamburri, M.N., Whaling, P.J., Kuhnz, L., Pane, E. F. (2013). The response of abyssal organisms to low pH conditions during a series of CO₂-release experiments simulating deep-sea carbon sequestration. *Deep Sea Research I* 92: 249-260.
- Blum, J.D., Popp, B.N., **Drazen, J.C.**, *Choy, C.A., Johnson, M.W. (2013). Methylmercury production below the mixed layer in the North Pacific Ocean. *Nature Geosciences*. 6: 879-884. doi:10.1038/ngeo1918
- *Choy, C.A., #Portner, E., #Iwane, M., **Drazen, J.C.** (2013). Diets of five important predatory mesopelagic fishes of the central North Pacific. *Marine Ecology Progress Series* 492: 169-184.

- *Choy, C.A., **Drazen, J.C.** (2013) Plastic for dinner? Frequent debris ingestion by large pelagic fishes from the central North Pacific subtropical gyre *Marine Ecology Progress Series* 485: 155-163
- Dale, J.J., **Drazen, J.C.**, Holland, K. N. (2013) Stingray life-history trade-offs associated with nursery habitat use inferred from a bioenergetics model. *Marine Biology* 160: 3181-3192.
- Drazen, J.C.**, #Dugan, B., Friedman, J.R. (2013). Red muscle proportions and enzyme activities in deep-sea demersal fishes off California. *Journal of Fish Biology* 83: 1592-1612.
- #Fleury, A. and **Drazen, J.C.** (2013) Abyssal scavenging communities attracted to Sargassum and fish in the Sargasso Sea. *Deep Sea Research I* 72: 141-147
- Hafner, N, **Drazen, J.C.**, Lubecke, V. M. (2013) Fish Heart Motion Measurements with a Body-Contact Doppler Radar Sensor. *IEEE Sensors Journal* 13: 408-414
- Hannides, C.C.S., Popp, B.N., *Choy, C.A., **Drazen, J.C.** (2013) Midwater zooplankton and suspended particle dynamics in the North Pacific Subtropical Gyre: a stable isotope perspective. *Limnology and Oceanography* 58: 1931-1946.
- *Misa, W.F.X.E., **Drazen, J.C.**, Kelley, C.D., Moriwake, V.N. (2013). Establishing species-habitat associations for 4 eteline snappers with the use of a baited stereo-video camera system. *Fishery Bulletin* 111: 293-308.
- ^Moore, C.H., **Drazen, J.C.**, Kelly, C.D., *Misa, W.F.X.E. (2013). Deepwater marine protected areas of the main Hawaiian Islands: the importance of integrating context when establishing baselines. *Marine Ecology Progress Series* 476:167-183
- #Wilson, S., Yeh, J., Korsmeyer, K.E., **Drazen, J.C.** (2013) Metabolism of shallow and deep-sea benthic crustaceans and echinoderms in Hawaii. *Marine Biology* 160: 2363-2373
- *Choy, C. A., P. C. Davison, **J. C. Drazen**, A. Flynn, E. J. Gier, J. Hoffman, J. P. McClain-Counts, T. W. Miller, B. N. Popp, S. W. Ross, and T. T. Sutton. (2012). Global trophic position comparison of two dominant mesopelagic fish families (Myctophidae, Stomiidae) using amino acid nitrogen isotopic analyses. *PLoS One* 7: e50133
- *Condon, N.E., *Friedman, J.R., **Drazen, J.C.** (2012) Metabolic enzyme activities in shallow- and deep-water chondrichthyans: Implications for metabolic and locomotory capacity. *Marine Biology* 159: 1713-1731
- De Leo, F. C., **J. C. Drazen**, E. W. Vetter, A. A. Rowden and C. R. Smith (2012). The effects of submarine canyons and the oxygen minimum zone on deep-sea fish assemblages off Hawaii. *Deep-sea Research I* 64:54-70.
- Devine, J. A., Watling, L., Cailliet, G., **Drazen, J.**, Duran Munoz, P., Orlov, A. M., Bezaury, J. (2012) Evaluation of potential sustainability of deep-sea fisheries for Grenadiers (Macrouridae). *Journal of Ichthyology* 52: 709-721
- Drazen, J. C.** and Haedrich. R. L. (2012). A continuum of life histories in deep-sea fishes. *Deep-Sea Research I* 61:34-42.
- Drazen, J.C.**, Bailey, D.M., Ruhl, H., Smith, K.L., Jr. (2012) The role of carrion supply in the abundance of deep-water fish off California. *PLoS ONE* 7: e49332
- Drazen, J.C.**, Yeh, J. (2012) Respiration of four species of deep-sea demersal fishes measured in situ in the eastern North Pacific. *Deep-Sea Research I* 60:1-6.
- *Friedman, J.R., *Condon, N, **Drazen, J.C.** (2012) Gill surface area and metabolic enzymes of demersal fishes associated with the oxygen minimum zone off California. *Limnology and Oceanography* 57: 1701:1710.

- O'Malley, J.M., **Drazen, J.C.**, Popp, B.N., Toonen, R.J., Gier, E. (2012). Spatial Variability in Growth and Prey Availability of Lobsters in the Northwestern Hawaiian Islands Marine Ecology Progress Series 249:211-220.
- Drazen, J. C.**, De Forest, L., and Domokos, R. (2011). Micronekton abundance and biomass in Hawaiian waters as influenced by seamounts, eddies, and the moon. *Deep-Sea Research* 58:557-566.
- Drazen, J.C.**, Yeh, J., *Friedman, J.R., and *Condon, N. (2011) Metabolism and enzyme activities of pacific hagfish from shallow and deep water. *Comparative Biochemistry and Physiology A* 159:182-187.
- Laxson, C.J., *Condon, N.E., **Drazen, J.C.**, Yancey, P.H. (2011) Decreasing urea:trimethylamine N-oxide ratios with depth in chondrichthyes: a physiological depth limit? *Physiological and Biochemical Zoology* 84: 494-505.
- Merritt, D., M. K. Donovan, C. Kelley, L. Waterhouse, M. Parke, K. Wong and **J. C. Drazen**. (2011). BotCam: A baited camera system for non extractive monitoring of bottomfish species. *Fishery Bulletin* 109:56-67.
- Yeh, J. and **Drazen, J. C.** (2011). Baited camera observations of deep-sea megafaunal scavenger ecology on the California slope. *Marine Ecology Progress Series* 424: 145-156.
- *Choy, C. A., Popp, B. N., Kaneko, J. J. and **Drazen, J. C.** (2009). The Influence of Depth on Mercury Levels in Pelagic Fishes and their Prey. *Proceedings of the National Academy of Sciences, USA* 106: 13865-13869.
- *De Forest, L. and **J. C. Drazen** (2009). The influence of a Hawaiian seamount on a mesopelagic micronekton community. *Deep-Sea Research I* 56(2): 232-250.
- Drazen, J. C.**, Phleger, R., and Nichols, P. D. (2009). Lipid compositions and diet inferences in abyssal macrourids of the eastern North Pacific. *Marine Ecology Progress Series* 387:1-14.
- Featured Article*
- *Yeh, J. and **J. C. Drazen** (2009). Depth zonation and bathymetric trends of deep-sea megafaunal scavengers of the Hawaiian Islands. *Deep-Sea Research I* 56(2): 251-266.
- Drazen, J. C.** (2008). Energetic patterns in grenadier fishes; implications for fisheries. In "Grenadiers of the World Oceans: Biology, Stock assessment, and Fisheries." Orlov, A and T. Iwamoto (eds). *American Fisheries Society* volume 63: 203-223.
- Drazen, J. C.**, B. N. Popp, *L. De Forest, *C. A. Choy, and T. Clemente and K. L. Smith. (2008). Bypassing the abyssal benthic food web: macrourid diet in the eastern North Pacific inferred from stomach content and stable isotopes analyses. *Limnology and Oceanography* 53(6): 2644-2654.
- Drazen, J. C.**, C. F. Phleger, M. A. Guest, and P. D. Nichols (2008). Lipid, sterols and fatty acids of abyssal polychaetes, crustaceans, and a cnidarian and from the north-east Pacific Ocean: food web implications. *Marine Ecology Progress Series* 372: 157-167.
- Drazen, J. C.**, C. F. Phleger, M. A. Guest, and P. D. Nichols (2008). Lipid, sterols and fatty acid composition of abyssal holothurians and ophiuroids from the north-east Pacific Ocean: food web implications. *Comparative Biochemistry and Physiology B* 151:79-87.
- Barry, J. P. and **Drazen, J. C.** (2007). Response of deep-sea scavengers to ocean acidification and the odor from a dead grenadier. *Marine Ecology Progress Series* 350: 193-207.
- Drazen, J. C.** (2007). Depth related trends in proximate composition of benthic and benthopelagic fishes. *Deep-Sea Research I* 54: 203-219.

- Drazen, J. C.** and B. A. Seibel (2007). Depth-related trends in metabolism of benthic and benthopelagic deep-sea fish. *Limnology and Oceanography* 52(5): 2306-2316.
- Drazen, J. C.**, K. R. Reisenbichler, and B. H. Robison (2007). A comparison of absorption and assimilation efficiencies between four species of shallow- and deep-living fishes. *Marine Biology* 151(4): 1551-1558.
- Ferry-Graham, L. A., **J. C. Drazen**, and V. Franklin (2007). Laboratory observations of reproduction in deep-water zoarcids *Lycodes cortezianus* and *Lycodapus mandibularis* (Teleostei: Zoarcidae). *Pacific Science* 61(1): 129-139.
- Samerotte, A. L., **J. C. Drazen**, G. L. Brand, B. A. Seibel, and P. H. Yancey (2007). Correlation of trimethylamine oxide and habitat depth within and among species of teleost fish: An analysis of causation. *Physiological and Biochemical Zoology* 80 (2): 197-208.
- Seibel, B. A. and **J. C. Drazen** (2007). The rate of metabolism in marine animals: Environmental constraints, ecological demands and energetic opportunities. *Philosophical Transactions of the Royal Society of London B*, 362: 2061-2078.
- Stein, D. L., **J. C. Drazen**, K. L. Schlining, L. Kuhnz, and J. P. Barry (2006). Snailfishes of the central California coast: video, photographic, and morphological observations. *Journal of Fish Biology* 69: 970-986.
- Drazen, J. C.**, L. Bird, and J. P. Barry (2005). Development of a hyperbaric fish trap/respirometer. *Limnology and Oceanography: Methods* 3:488-498.
- Drazen, J. C.** and B. H. Robison (2004). Direct observations of the association between a deep-sea fish and a giant scyphomedusa. *Marine and Freshwater Behaviour and Physiology* 37(3): 209-214.
- #Gutowska, M., **J. C. Drazen**, and B. H. Robison (2004). Digestive chitinolytic activity in marine fishes of Monterey Bay, California. *Comparative Physiology and Biochemistry A* 139(3): 351-358.
- Voight, J. R. and **J. C. Drazen**. (2004) Hatchlings of the deep-sea octopus *Graneledone boreopacifica* are the largest and most advanced known. *Journal of Molluscan Studies* 70(4): 400-402.
- Drazen, J. C.**, S. K. Goffredi, B. Schlining, and D. S. Stakes (2003). Aggregations of egg-brooding deep-sea fish and cephalopods on the Gorda Escarpment: a reproductive hotspot. *Biological Bulletin* 205: 1-7. **Featured Article**
- Drazen, J. C.** 2002. A seasonal analysis of the nutritional condition of deep-sea macrourid fishes in the NE Pacific. *Journal of Fish Biology* 60(5): 1280-1295.
- Drazen, J. C.** 2002. Energy budgets and feeding rates of *Coryphaenoides acrolepis* and *C. armatus*. *Marine Biology* 140: 677-686.
- Drazen, J. C.**, Buckley, T. W., and Hoff, G. R. 2001. The feeding habits of slope dwelling macrourid fishes in the eastern North Pacific. *Deep-Sea Research I* 48: 909-935.
- Hoff, G. R., T. W. Buckley, **J. C. Drazen**, and #K. M. Duncan. 2000. Biology of *Nezumia liolepis* and *Nezumia stelgidolepis* from the west coast of North America. *Journal of Fish Biology* 57(3): 662-680.
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Gonzalez, R. J., **J. C. Drazen**, S. Hathaway, B. Bauer, and M. Simovich. 1996. Physiological correlates of water chemistry requirements in fairy shrimp (Anostraca) from southern California. *Journal of Crustacean Biology* 16(2): 286-293.

Manuscripts submitted and in revision

*Leitner A, Neuheimer AB, **Drazen JC** (in revision) Unraveling the mystery of seamount-enhanced primary production. *Nature Communications*

Peoples LM, Grammatopolou E, Pombrol M, Xu X, Osuntokun O, Blanton J, Allen EE, ^Nunnally C, **Drazen JC**, Mayor D, Bartlett DH (submitted) Microbial diversity in surficial sediments of the Mariana and Kermadec trenches. *Environmental Microbiology*

Zhang, W., Watanabe, H.K., Ding, W., Tian, R.-M., Sun, J., Chen, C., Cai, L., Li, Y., Oguri, K., Toyofuku, T., Kitazato, H., **Drazen, J.**, Bartlett, D., Qian, P.-Y., (submitted). Gut microbial divergence between two isolated populations of the hadal amphipod *Hirondellea gigas*. *Applied and Environmental Microbiology*.

Conference proceedings and other publications

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Drazen, J. C. (2011). Review of “Sex, Drugs, and Sea Slime: the Oceans’ Oddest Creatures and Why They Matter” by Ellen Prager. *Oceanography* 24 (4): 44-45.

Drazen, J.C., Moriwake, V., Demarke, C., Alexander, B., *Misa, W., Yeh, J. (2010). Assessing Kaho‘olawe Island Reserve’s bottomfish populations: a potential benchmark for main Hawaiian Island restricted fishing areas. Report for the Kahoolawe Island Reserve Commission, pp. 1-33.

- Watling, L., Haedrich, R.L., Devine, J., **Drazen, J.C.**, Dunn, M., Gianni, M., Baker, K., Cailliet, G., Figueiredo, I., Kyne, P. M., Menezes, G., Neat, F., Orlov, A., Duran, P., Perez, J.A., Ardron, J.A., Bezaury, J., Revenga, C., Nouvian, C. (2010). Can ecosystem-based deep-sea fishing be sustained? , Report of a Workshop held 31 August - 3 Sept. 2010, Neuville-Bosc, France, pp. 1-83.
- Drazen, J. C.** and *Lisa G. De Forest (2008) The influence of Hawaiian seamounts and islands on the forage base for oceanic predators. Pelagic Fisheries Research Program Newsletter 13 (3): 4-8
- Smith, C. R., **J. C. Drazen**, and S. Mincks (2006) Deep-sea biodiversity and biogeography: perspectives from the abyss. Proceedings of the workshop on Mining of Cobalt Rich Ferromanganese Crusts and Polymetallic Sulphides - Technological and Economic Considerations. International Seabed Authority, Kingston, Jamaica.
- Bird, L.B., **J. C. Drazen**, J. P. Barry (2004). 4,000 meter hyperbaric fish trap aquaria respirometer. Proceedings of the Oceans'04 MTS/IEEE. Kobe, Japan, pp 972-976.
- Barry J.P., Seibel B.A., **Drazen J.C.**, Tamburri M.N., Buck K.R., Lovera C., Kuhnz L., Peltzer E.T., Osborn K., Whaling P.J., Walz P., Brewer P.G. (2003) Deep-sea field experiments on the biological impacts of direct deep-sea CO₂ injection. Proceedings of the Second Annual Conference on Carbon Sequestration. U.S. Dept. of Energy, Alexandria, Virginia, pp 1-7.
- Drazen, J. C.** (2000). Feeding ecology of Pacific Macrourids. PhD thesis. Scripps Institution of Oceanography - University of California, San Diego.

Current Grant Activity

Collaborative Research: Assessing the relative importance of small vs large particles as sources of nutrition to abyssal communities. Jeffrey C. Drazen, Brian N. Popp, Claudia Benitez-Nelson, Craig R. Smith. Sept 1, 2018 to Aug 31, 2021 by NSF Biological Oceanography. \$1,095,316

Ecosystem-wide survey of biodiversity, connectivity and ecosystem function across the deep seafloor biome of the CCZ to help assess and manage the impacts of polymetallic nodule mining. C. R. Smith, J. C. Drazen, M. J. Church, T. Dahlgren, A. Glover, and A. Sweetman. 3/1/17-2/28/20 by GB Moore Foundation. \$2,403,687

Collaborative Research: Isotopic insights to mercury in marine food webs and how it varies with ocean Biogeochemistry. B. Popp, J. Drazen, C. Hannides, K. Seraphin, J. Blum, C. Benitez-Nelson. July 21, 2014 to July 20, 2018 by NSF Chem-Oce. \$410,130

Exploration of biodiversity and ecosystem structure on seamounts in the western CCZ. Jeffrey C. Drazen, Craig R. Smith, Erica Goetze and Eric Vetter, with collaborators Adrian Glover and Thomas Dahlgren. Sept 1, 2017 to 8-31-18 by NOAA Office of Ocean Exploration and Research. \$746,000

Hadal Water Column Profiler. Glenn Carter, Jeffrey C. Drazen, Bruce M. Howe, Christopher I. Measures. Oct 1, 2017 to June 30, 2020 by WM Keck Foundation. \$1,200,000

Invited Presentations (last 5 years)

3/17 Small particles may form a previously overlooked food source for mesopelagic zooplankton and micronekton. Jeffrey C. Drazen, Brian Popp, Hilary Close, Cecelia Hannides, Kristen Gloeckler,

Anela Choy, Matt McCarthy, Claudia Benitez-Nelson, and Kanesa Duncan. Scripps Institution of Oceanography, La Jolla, CA

- 5/16 Evaluating sources of nutrition to mesopelagic food webs using stable isotopes. Jeffrey Drazen, Brian Popp, Hilary Close, Cecelia Hannides, Kristen Gloeckler, Anela Choy, Matt McCarthy, Claudia Benitez-Nelson, and Kanesa Duncan. Scripps Institution of Oceanography, La Jolla, CA
- 10/15 Studying the biology of the Mariana Trench, the deepest place on Earth. Jeffrey Drazen, Clif Nunnally, Mackenzie Gerringer, Patty Fryer, Paul Yancey, Alan Jamieson, Thom Linley, Tim Shank and the HADES team. Science Café, Honolulu, HI
- 2/15 Studying the biology of the Mariana Trench, the deepest place on Earth. **Jeff Drazen**, Patty Fryer, Alan Jamieson, Dan Mayor, Stuart Piertney, Paul Yancey, Tim Shank, Amanda Demopolous, Craig Young. NOAA Inouye Research Center Science Seminar Series
- 1/15 Evaluating bottomfish restricted fishing areas using stereo video cameras: an update on recent results. **Jeffrey Drazen**, Dana Sackett, Virginia Moriwake, William Misa, Cordelia Moore, Chris Demarke and Chris Kelley. 2015 NOAA Bottomfish Workshop, Honolulu, HI
- 12/14 Studying the biology of the Mariana Trench, the deepest place on Earth. **Jeff Drazen**, Patty Fryer, Alan Jamieson, Dan Mayor, Stuart Piertney, Paul Yancey, Tim Shank, Amanda Demopolous, Craig Young. University of Guam Marine Laboratory
- 6/13 Evaluating the Effectiveness of Bottomfish Restricted Fishing Areas in the Main Hawaiian Islands. **Jeffrey Drazen**, Dana Sackett, Cordelia Moore, William Misa, Virginia Moriwake, Chris Kelley and the bottomfish team 155th Meeting of the Western Pacific Regional Fishery Management Council. Honolulu, HI
- 5/13 Evaluating the Effectiveness of Bottomfish Restricted Fishing Areas in the Main Hawaiian Islands. **Jeffrey Drazen**, Dana Sackett, Cordelia Moore, William Misa, Virginia Moriwake, Chris Kelley and the bottomfish team. Department of Aquatic Resources: Fisher's Talk Story. Honolulu, HI
- 5/13 Vertical connectivity in deep-sea food webs. Jeffrey Drazen. UH Marine Biology Graduate Program Seminar series.
- 2/13 Studying Bottomfish and BRFA's with BotCams. Jeffrey Drazen, Dana Sackett, Cordelia Moore, William Misa, Virginia Moriwake and the bottomfish team. 2013 NOAA Bottomfish Workshop, Honolulu, HI

Teaching

Courses Taught

University of San Diego, Biology Department

Spring 2000 semester – *General Ecology Laboratory* (senior level writing course)

Fall 1999 semester – *Introduction to Organismal Biology Laboratory*

Spring 1999 semester – *General Ecology Laboratory* (senior level writing course)

University of Hawaii, Department of Oceanography

OCN627 *Ecology of Pelagic Marine Animals* (graduate course with lab)

Spring 2004-2008, 2015, 2017-2018

Cotaught with Dr. Erica Goetze – Spring 2009-2013, 2017

OCN630 *Deep-Sea Biology* (graduate course)

Cotaught with Dr. Craig Smith – Fall 2009, 2011, 2013, 2015

OCN430 *Introduction to Deep-Sea Biology* (undergraduate course)

Cotaught with Dr. Craig Smith – Fall 2013, 2015, 2017

OCN331 *Living Resources of the Sea* – (undergraduate course)

Cotaught with Dr. Rosie Alegado – Fall 2015, 2016, Spring 2018

Various guest lectures for the following courses

OCN201 *Introduction to Oceanography*

OCN490 *Communication of Research Results*

OCN628 *Benthic Ecology*

OCN621 *Biological Oceanography*

BIOL404 *Advanced Topics in Marine Biology*

OCN100 *Global Environmental Science Seminar*

GG639 *Stable Isotope Biogeochemistry*

BIO602 *Marine Biology: Process and Impacts*

Advising

Postdoctoral scientists

Cordelia Moore, Oct 2010 to Jan 2012

Dana Sackett, April 2012 to April 2015

Clifton Nunnally, July 2012 to June 2015

Sonia Romero, April 2018 to present

MS students

John Yeh, Summer 2005 to Spring 2008, defended Jan 30th

Lisa DeForest, Fall 2005 to Spring 2008, defended Jan 29th

C. Anela Choy, Fall 2006 to Fall 2008, defended Nov 12th

Nicole Condon, Fall 2008 to Summer 2011, defended June 15th

Jason Friedman, Fall 2008 to Summer 2011, defended July 13th

William Misa, Spring 2010 to Summer 2012, defended May 25th

Kristen Gloeckler, Fall 2014 – Fall 2016, defended Nov 4th

Jesse Black, Spring 2018 - present

PhD students

C. Anela Choy, Summer 2009 to Fall 2013, defended Nov 1st

Jamie Gove (coadvisor with Margaret McManus), Spring 2009 to Fall 2013, defended Dec 13th

Mackenzie Gerringer, Fall 2013 to Spring 2017, defended Apr 6th

Astrid Leitner, Fall 2013 to present

Phoebe Woodworth-Jefcoats (coadvisor with Jeff Polovina), Summer 2013 to present

Jessie Perelman, Fall 2017 to present

Additional Research Mentoring

Sage Morningstar (Spring 2018 – present), UH Marine Biology student
Sean Holland (Fall 2017 – present), UH GES student
Andrew Tokuda (Spring 2017 – present), UH GES student
Yuuki Niimi (Fall 2016 – Spring 2018), UH Marine Biology student
Jana Phipps (Spring 2016 – Spring 2017), UH Marine Biology student
Jennifer Wong-Ala (Fall 2015 – Spring 2017), UH GES student, coadvised with Phoebe Woodworth
Sonia Romero (May – July 2016), University of Oviedo, Spain, PhD student
Erica Donlon (Fall 2015 – Spring 2016), UH Marine Biology student, coadvised with Astrid Leitner
Amica Dillon (spring 2015), Kalani high school student
Kazia Mermel (summer 2014, summer 2015), Carleton College undergraduate student
Whitney Ko (Spring 2014 – Fall 2014), UH GES student
William Truong (Summer 2013 – Spring 2014), UH Marine Biology and CMORE student
Danielle Garcia (Spring 2013 – Fall 2013), UH Marine Biology honors student
Mentored with Dr. Kevin Weng
Monica Garcia (September 2012 – August 2013), UH GES student
Ulla Fernandez (Sept 2012 – Nov 2012), Institute of Ciències del Mar, Barcelona Spain, PhD student
Aharon Fleury (Nov 2011 – 2013), UH Marine Biology student
Bryant Dugan (Jan 2011 – June 2011), UH Marine Biology student
Suzi Wilson (Oct 2010 – July 2011), University of Glasgow undergrad student
Jessica Sun (Spring 2010- Dec 2011), UH Marine Biology student
Erica Aus (Fall 2009 – Fall 2011), UH GES student
William Misa (Spring 2007- Fall 2008), UH GES student
Krystle Turkington (spring 2007), undergraduate from Hawaii Pacific University
Katrina Loewy (summer 2006), undergraduate from Colorado College
Molly-Jean Martin (Fall 2005 to Spring 2006), UH Marine Biology student
Lisa Kamin (summer 2003), MBARI undergraduate summer internship program
Magdalena Gutowska (summer 2002), MBARI undergraduate summer internship program
Tonatiuh Trejo (Fall 2001), graduate student at Moss Landing Marine Laboratory
Ami Groce (6/99 – 3/00), graduate student at San Diego State University
Stephanie Fletcher (spring 1999), undergraduate student at University of San Diego
Kanesa Duncan (summer 1998), undergraduate student at California Polytechnic State University
Jeremy Long and Chris Aeria (fall 1995 to fall 1996), undergraduate students at Univ. of San Diego

Service and Synergistic Activities

1. Board member, Scientific Advisory board of Shanghai Ocean University's Hadal Science and Technology program, 2015 – present
2. Review Panel member (2016) for NOAA-PIFSC Ecosystem Science External Review
3. Workshop/Meeting Organization – chair for Effects of Deep-Sea Mining on Pelagic Ecosystems Workshop (Honolulu, Aug 27-30, 2018), co-chair for Deep-sea Bottomfish Ecosystem and Monitoring Workshop (Honolulu Sept 16-18, 2009), steering committee member for Global Deep-Sea Fisheries Workshop (Monaco, Aug 31 – Sept 2, 2010), co-convenor/organizer for international meeting Deep-Sea Fish Biology (July 2013), Glasgow, Scotland.

4. Guest speaker for public and educational venues including UH open houses, All Things Marine Radio Show: 760AM, SeaCamp, various K-12 schools in Hawaii, Waikiki Aquarium Family Night, Haunama Bay Lecture Series
5. NSF RET program with two Hawaii K-12 educators helping them with curriculum on the deep sea and fisheries, this program involved students from groups underrepresented in the sciences
6. Advisor and image use to several museum exhibitions and educational non-profits including Windsor Nature Discovery, Natural History Museum of London, Natural History Museum – Basel, BBC, Underwater World, Muséum d'Histoire Naturelle, Oceana, Whaletimes Inc., Abysses – a travelling exhibition by Bloom Association, David Attenborough's "Natural Curiosities" TV show
7. Science press has been featured in local and international news including
ABC Science News - Deep sea mercury mystery solved - <http://www.abc.net.au/science/articles/2013/08/27/3834929.htm>
The GUARDIAN – Dec 21st, 2014 - The 12 most important moments in science in 2014: The octopus who sat on her eggs for four years - <http://gu.com/p/4457j/sbl>
Discover Magazine – Jan/Feb 2014 - 2014's top 100 Science Stories - Nature's Most Patient Mother - <http://discovermagazine.com/2015/jan-feb/85-natures-most-patient-mother>
National Public Radio – Morning Edition - Dec 25th, 2014 - Unexpected Life Found In The Ocean's Deepest Trench. <http://www.npr.org/blogs/thetwo-way/2014/12/25/372894314/unexpected-life-found-in-the-oceans-deepest-trench>
Scientific American - Jan 8, 2015- Deepest Fish Features Angel Wings, Tentacles and Amazing Ability to Perform Under Pressure. <http://blogs.scientificamerican.com/artful-amoeba/2015/01/08/deepest-fish-features-angel-wings-tentacles-and-amazing-ability-to-perform-under-pressure/>
8. Featured scientist and/or research material in TV productions
National Geographic 2012 TV series "Alien Deep" (producer Gary Johnstone)
Three episodes of Telly award winning TV and online science show "Voice of the Sea" <http://seagrant.soest.hawaii.edu/about-voice-sea> Aired on statewide TV in Hawaii and will air in U.S. territories and affiliated Pacific regions in 2016; Episodes were also used in Hawaii Sea Grant Hanauma Bay Education Program, the NOAA Daniel K. Inouye Memorial Center on Oahu, the Maui Ocean Center on Maui, and the Mokuapapapa Discovery Center on Hawaii Island
BBC TV miniseries "Blue Planet II" (producer Orla Doherty) – this is a follow on to the incredibly popular "Blue Planet" series and features our hadal research