

ROBERT P. DUNN

North Inlet – Winyah Bay National Estuarine Research Reserve
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PROFESSIONAL APPOINTMENTS

Research Coordinator, North Inlet–Winyah Bay National Estuarine Research Reserve	2020 -
Research Associate Professor, Baruch Marine Field Lab, Univ. South Carolina	2024 -
Research Assistant Professor, Baruch Marine Field Lab, Univ. South Carolina	2020 - 2024
Research Affiliate, Department of Biology, Univ. South Carolina	2021 -
Research Affiliate, Southeast Climate Adaptation Science Center	2024 -
Postdoctoral Research Fellow, Department of Biology, San Diego State University	2019

EDUCATION

Ph.D. Ecology, San Diego State University & University of California, Davis	2019
M.S., Marine Science, North Carolina State University	2013
B.A. Highest Honors in Environmental Studies, UNC-Chapel Hill	2009
B.A. Romance Languages, Spanish, UNC-Chapel Hill	2009

RESEARCH GRANTS & AWARDS

1. 2024-2026 **NOAA Office for Coastal Management**: “Quantifying dynamics of penaeid shrimp nursery habitat use to inform ecosystem-based management in a changing world” [PI, on behalf of graduate student co-PI: \$107,330]
2. 2023-2024 **NOAA NERRS Science Collaborative**: “Evaluating oyster reefs as habitat: Comparing the utility of ecological metrics to assess ecosystem function” [Co-PI & Collaborative Lead: \$199,943]
3. 2021-2025 **NOAA NERRS Science Collaborative**: “Incorporating environmental variability into ecosystem-based management for penaeid shrimp in the southeast US” [PI: \$599,997]
4. 2021-2023 **USC ASPIRE**: “Developing sustainable fishery management procedures for a key estuarine species: blue crabs *Callinectes sapidus* in South Carolina” [PI: \$9,810]
5. 2021-2024 **NOAA NERRS Science Collaborative**: “Detecting Impacts from Climate Change across Multiple Scales: A National Synthesis of Tidal Marshes” [Team member; Total: \$599,894; USC Sub-award: \$14,821]
6. 2021-2022 **NOAA NERRS Science Collaborative**: “Transfer of a low-cost tidal wetland water level monitoring system: hyperlocal calculations of inundation and tidal datums for understanding change and restoration planning” [Co-PI: \$99,825; USC: Unfunded participant]
7. 2021-2022 **NOAA NERRS Science Collaborative**: “Listen in: Acoustic monitoring of estuarine communities facing ecosystem change” [Team member; Total: \$148,013; USC Sub-award: \$14,900]
8. 2019-2021 **California Ocean Protection Council**: “A multi-faceted approach to enhance sustainability of the California spiny lobster fishery” [Proposal co-author and investigator: \$249,169]
9. 2016-2019 **National Marine Fisheries Service/Sea Grant**: Population & Ecosystem Dynamics Fellowship [\$138,000]

10. 2015 **National Science Foundation**: Graduate Research Internship Program [\$5,000]
11. 2011-2014 **National Science Foundation**: Graduate Research Fellowship [\$130,000]

PEER-REVIEWED PUBLICATIONS

1. Mallick, N & **Dunn, R.P.** (Accepted) Environmental conditions in estuaries of the southeast US: characterizing long-term trends and identifying seasonal drivers. *Ocean-Land-Atmosphere Research*
2. Donaher, S., Estes, S.L., **Dunn, R.P.**, Gonzales, A. Powell, B., Martinez, N. 2024. Site- and species-specific metal concentrations, mobility, and bioavailability in sediment, flora, and fauna of a southeastern United States salt marsh. *Science of the Total Environment* 922: 171262. DOI: 10.1016/j.scitotenv.2024.171262
3. Gould, E., Fraser, H.S., Parker, T.H., **Dunn, R.P.** et al. 2023. Same data, different analysts: variation in effect sizes due to analytical decisions in ecology and evolutionary biology. *BMC Biology* [Preliminary Acceptance as Registered Report]. DOI: 10.32942/X2GG62
4. Glover, K.M., Kimball, M.E., Pfirrmann, B.W., Pelton, M.M., **Dunn, R.P.** 2023. Juvenile brown shrimp (*Farfantapenaeus aztecus*) use of salt marsh intertidal creeks as nursery habitat. *Estuaries & Coasts* 46:1895-1906. DOI: 10.1007/s12237-023-01251-5
5. **Dunn, R.P.**, Krask, J.L., Pinckney, J.L., Smith, E.M. 2023. Contrasting trends in water quality between adjacent ocean- and river-dominated estuaries: evidence for marsh porewaters as a source of nutrient enrichment? 68: 2040-2058. *Limnology and Oceanography* DOI: 10.1002/lno.12405
6. **Dunn, R.P.**, Pelton, M.M., Doll, L.G. 2023. Moderate recreational oyster harvest has variable impacts on biophysical properties of reefs and reef-associated fauna. *Ecosphere* 14:e4597. DOI: 10.1002/ecs2.4597
*Featured in Saveur: [South Carolina oyster sustainability](#)
7. Quezada-Villa K., Cannizzo, Z., Carver, J., **Dunn, R.P.**, Fletcher, L.S., Kimball, M.E., McMullin, A.L., Orocu, B., Pfirrmann, B.W., Pinkston, E., Reese, T.C., Smith, N., Stancil, C., Toscano, B.J., Griffen, B.D. 2023. Predicting diet in brachyuran crabs using external morphology. *PeerJ* 11:e15224. DOI: 10.7717/peerj.15224
8. Donaher, S., **Dunn, R.P.**, Gonzales, A. Wattier, B., Powell, B., Martinez, N. 2023. Tissue-specific toxicokinetics of aqueous radium-226 in an estuarine mussel, *Geukensia demissa*. *Environmental Science & Technology* 57:3187-3197. DOI: 10.1021/acs.est.2c09421
9. **Dunn, R.P.**, Buck, T.L., Krask, J.L., Stevens, J.B., Smith, E.M. 2023. Elevation influences salt marsh crab abundance, diversity, and burrowing. *Marine Ecology Progress Series* 704:55-66. DOI: 10.3354/meps14229
10. Pfirrmann, B.W., **Dunn, R.P.**, Kimball, M.E, Levesque, E.M. 2023. Experimental tests of post-release habitat selection by hatchery-reared juvenile red drum (*Sciaenops ocellatus*). *Journal of Experimental Marine Biology and Ecology* 559:151852. DOI: 10.1016/j.jembe.2022.151852
11. **Dunn, R.P.**, Kimball, M.E., O'Brien, C.G., Adams, N.T. 2023. Characterising nekton habitat use of fringing oyster reefs using acoustic imaging. *Marine & Freshwater Research* 74(1):39-49. DOI: 10.1071/MF22081.
12. Donovan, M.K., Alves, C., Burns, J., Drury, C., Meier, O.W., Ritson-Williams, R., Cuning, R., **Dunn, R.P.**, Goodbody-Gringley, G., Henderson, L., Knapp, I., Levy, J. Logan, C.A. Mudge, L., Sullivan, C.J., Gates, R.D., Asner, G.P. 2023. From polyps to pixels: understanding coral reef resilience to local and global change across scales. *Landscape Ecology* 38:737-752. DOI: 10.1007/s10980-022-01463-3

13. Krask, J.L., Buck, T.L., **Dunn, R.P.**, Smith, E.M. 2022. Increasing tidal inundation corresponds to rising porewater nutrient concentrations in a southeastern U.S. salt marsh. *PLoS ONE* 17(11): e0278215. DOI: 10.1371/journal.pone.0287215
14. Knight, C.J., **Dunn, R.P.**, Long, J.D. 2022. Conspecific cues, not starvation, mediate habitat-specific responses of urchins to predation risk. *Oecologia* 199(4): 859-869. DOI: 10.1007/s00442-022-05225-5
15. **Dunn, R.P.**, Samhouri, J.F., Baskett, M.L. 2021. Transient dynamics during kelp forest recovery from fishing across multiple trophic levels. *Ecological Applications* 31(6): e02367. DOI: 10.1002/eap.2367
*Featured in Bulletin of the Ecological Society of America: [Understanding kelp forest recovery](#)
16. **Dunn, R.P.**, Pfirrmann, B.W., Kimball, M.E. 2021 Juvenile white shrimp (*Litopenaeus setiferus*) can be effectively implanted with passive integrated transponder tags. *Journal of Experimental Marine Biology and Ecology* 540: 151560. DOI: 10.1016/j.jembe.2021.151560
*Featured on North Carolina Sea Grant's [Hook, Line & Science Blog](#)
17. Jenkinson, R., Hovel, K.A., **Dunn, R.P.**, Edwards, M.S. 2020. Biogeographical variation in the distribution, abundance, and interactions among key species on rocky reefs of the northeast Pacific. *Marine Ecology Progress Series* 648: 51-65. DOI: 10.3354/meps13437
18. Bashevkin, S.M., Dibble, C., **Dunn, R.P.**, Hollarsmith, J.A., Ng, G., Satterthwaite, E.V., Morgan, S.G. 2020. Larval dispersal in a changing ocean with an emphasis on upwelling regions. *Ecosphere*. DOI: 10.1002/ec2.3015
19. **Dunn, R.P.** & Hovel, K.A. 2020. Predator type influences the frequency of functional responses to prey in marine habitats. *Biology Letters* 16(2): 20190758. DOI: 10.1098/rsbl.2019.0758
20. **Dunn, R.P.** & Hovel, K.A. 2019. Experiments reveal limited potential for top-down control in southern California kelp forests. *Ecology* 100(3): e02625. DOI: 10.1002/ecy.2625
*Featured in Bulletin of the Ecological Society of America: [Limited top-down control of key herbivore](#)
21. **Dunn, R.P.**, Altieri, A.H., Miller, K., Yeager, M., Hovel, K.A. 2018. Contrasting behavioral responses to predatory risk cues reflect different foraging strategies in two Caribbean sea urchins. *Marine Ecology Progress Series* 604:187-198. DOI: 10.3354/meps12733
22. **Dunn, R.P.**, Altieri, A.H., Miller, K., Yeager, M., Hovel, K.A. 2017. Coral identity and structural complexity drive habitat associations and demographic processes for an increasingly important Caribbean herbivore. *Marine Ecology Progress Series* 577:33-47. DOI: 10.3354/meps12230
23. **Dunn, R.P.**, Baskett, M.L., Hovel, K.A. 2017. Interactive effects of predator and prey harvest on ecological resilience of rocky reefs. *Ecological Applications* 27(6):1718-1730. DOI: 10.1002/eap.1581
*Featured in Bulletin of the Ecological Society of America: [Interactive predator-prey fishery harvest](#)
24. **Dunn, R.P.** 2016. Tool use by a temperate wrasse, California sheephead *Semicossyphus pulcher*. *Journal of Fish Biology* 88(2): 805-810. DOI: 10.1111/jfb.12856
*Featured on BBC Blue Planet II: [These are the world's smartest fish](#)
25. **Dunn, R.P.**, Eggleston, D.B., Lindquist, N. 2014. Oyster-sponge interactions and bioerosion of reef-building substrate materials: implications for oyster restoration. *Journal of Shellfish Research* 33(3): 727-738. DOI: 10.2983/035.033.0307
26. **Dunn, R.P.**, Eggleston, D.B., Lindquist, N. 2014. Effects of substrate type on demographic rates of eastern oyster (*Crassostrea virginica*). *Journal of Shellfish Research* 33(1): 177-185. DOI: 10.2983/035.033.0117

27. Roosenburg, W. M., Spontak, D. M., Sullivan, S. P., Matthews, E. L., Heckman, M. L., Trimbath, R. J., **Dunn, R. P.**, Dustman, E. A., Smith, L. and Graham, L. J. 2014. Nesting Habitat Creation Enhances Recruitment in a Predator-Free Environment: *Malaclemys* Nesting at the Paul S. Sarbanes Ecosystem Restoration Project. *Restoration Ecology* 22(6):815-823. DOI: 10.1111/rec.12147

SUBMITTED MANUSCRIPTS

1. Batchelder, L.J., Stone, J., Kimball, M.E., Pfirrmann, B.W., **Dunn, R.P.** Phenology of penaeid shrimp nursery habitat use: trends and environmental drivers over four decades (Tentatively accepted following minor revisions)
2. Koontz, E.L., Holmquist, J.R., **Dunn, R.P.**, et al. Controls on spatial variation in porewater methane concentrations across U.S. tidal wetlands. (Resubmitted, In review)
3. Reinl, K., **Dunn, R.P.**, Kinkade, C., Cressman, K. Integrating applied and basic research into the design and implementation of long-term coastal science (Resubmitted, In review)
4. **Dunn, R.P.**, Kimball, M.E., Pfirrmann, B.P., Bruck, A.S., Lane, W.M. Temporal habitat partitioning and resource competition between congeners: testing for density-dependent growth and mortality in estuarine shrimp (Under revision)
5. Gatch, J.R., Kimball, M.E., **Dunn, R.P.** Diversity and abundance of rays in inshore coastal waters of the eastern Gulf of Mexico (Submitted)

REPORTS & OTHER PRODUCTS

1. Bowler, C., Schnabolk, H., Jenkins, B., Hawes, R., Brockmeyer, R., **Dunn, R.P.**, Jacoby, C., Garvy, K., Bradley, K., Schillerstrom, N., Guilianelli, J. 2022. SASMI Workshop Topic Paper: Conservation and Restoration. 11 pp.
2. Biggs, C.R., Montie, E.W., Kimball, M., **Dunn, R.P.**, Boswell, K., Transue, L. 2021. Listen In: Acoustic Monitoring of Estuarine Communities Facing Ecosystem Change. National Estuarine Research Reserve System Science Collaborative. 23 pp.
3. **Dunn, R.P.** 2019. Effects of predators on sea urchin abundance and behavior on southern California rocky reefs and Caribbean coral reefs. PhD Dissertation, University of California, Davis. 193 pp.
4. **Dunn, R.P.** 2013. Oyster demographics and *Cliona* boring sponge on potential reef-building substrates-implications for oyster restoration. MS Thesis, North Carolina State University. 93 pp.
5. Roosenburg, W.M., **Dunn, R.P.**, Smeenk, N.L. 2010. Terrapin Monitoring at Poplar Island, 2009. Final Report Submitted to the Army Corps of Engineers, Baltimore Office, Baltimore, MD.
6. **Dunn, R.P.** 2009. Despite strong preferences for mussels, sheepshead predation on oysters in clumps is not enhanced by cohabiting mussels. Undergraduate Honors Thesis, UNC-Chapel Hill.

DATA SETS

1. **Dunn, R.P.**, Pelton, M.M., Doll, L.G. 2023. Data from: Moderate recreational oyster harvest has variable impacts on biophysical properties of reefs and reef-associated fauna. Zenodo. DOI: 10.5281/zenodo.7971285
2. Krask, J.L., Buck, T.L., **Dunn, R.P.**, Smith, E.M. 2022. Data from: Increasing tidal inundation corresponds to rising porewater nutrient concentrations in a southeastern U.S. salt marsh. Zenodo. DOI: 10.5281/zenodo.7108731
3. **Dunn, R.P.**, Kimball, M.E., O'Brien, C.G., Adams, N.T. 2022. Data from: Characterizing nekton habitat use of fringing oyster reefs using acoustic imaging. Zenodo. DOI: 10.5281/zenodo.7015583

4. **Dunn, R.P.**, Samhour, J.F., Baskett, M.L. 2021. Data from: Transient dynamics during kelp forest recovery from fishing across multiple trophic levels. Zenodo. DOI: 10.5281/zenodo.4521227
5. Jenkinson, R., Hovel, K.A., **Dunn, R.P.**, Edwards, M.S. 2020. Data from: Biogeographical variation in the distribution, abundance, and interactions among key species on rocky reefs of the northeast Pacific. Zenodo. DOI: 10.5281/zenodo.3952919
6. **Dunn, R.P.** & Hovel, K.A. 2019. Data from: Experiments reveal limited top-down control of key herbivores in southern California kelp forests. Dryad Dataset. DOI: 10.5061/DRYAD.50t6sq6
7. **Dunn, R.P.**, Baskett, M.L., Hovel, K.A. 2017. Data from: Interactive effects of predator and prey harvest on ecological resilience of rocky reefs. Dryad Dataset. DOI: 10.5061/dryad.m62ms

TEACHING EXPERIENCE

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| 1. University of South Carolina, SC Honors College (SCHC) 499
“Honors Senior Thesis” | 2022 - 2024 |
| 2. University of South Carolina, Environmental Science (ENVR) 399
“Independent Study in Environmental Science” | 2022 |
| 3. University of South Carolina, SC Honors College (SCHC) 497
“Honors Undergraduate Research” | 2022, 2023 |
| 4. University of South Carolina, Marine Science (MSCI) 460
“Coastal Community Ecology Research Field Techniques” | 2021 - 2024 |
| 5. San Diego State University, Biology (BIOL) 324
“Life in the Sea”, general education undergraduate course in marine biology | 2015 |
| 6. Workshop instructor, SDSU R User’s Group | 2015-2016 |
| 7. Grant Writing Workshop Leader, SDSU & UC Davis | 2013-2017 |
| 8. Graduate Teaching Assistant, North Carolina State, Dept. of Marine, Earth,
Atmospheric Sciences, “Introduction to Oceanography” Laboratory, MEA 210. | 2010-2011 |

SELECTED PRESENTATIONS

(*INVITED, §GRADUATE STUDENT COLLABORATOR, #UNDERGRADUATE COLLABORATOR)

1. ***Dunn, R.P.** 2024. The Lowcountry Shrimp Collaborative: an overview. Oral presentation, South Atlantic Fisheries Management Council Shrimp Advisory Panel. Charleston, SC.
2. ***Dunn, R.P.** Changing estuarine ecosystems and impacts on community ecology. 2024. University of North Carolina Greensboro, Department of Biology Seminar Series. Greensboro, NC.
3. §Batchelder, L., J. Stone, B.W. Pfirmann, M.E. Kimball, **R.P. Dunn**. 2023. Phenology of penaeid shrimp nursery habitat use in the southeastern United States. Oral presentation, CERF Bi-annual meeting, Portland, OR.
4. Sheremet, V., J. Goldstein, C. Peter, M. Tyrrell, K. Raposa, K. St. Laurent, **R.P. Dunn**, N. Dix. 2023. Hyperlocal water level monitoring reveals unpredictable inundation and drainage intervals in emerging marsh pools. Oral presentation, CERF Bi-annual meeting, Portland, OR.
5. **Dunn, R.P.**, #M.M. Pelton, #L.G. Doll. 2023. Recreational harvest reduces oyster density but has variable impacts on reef structure and associated fauna. Oral presentation, Ecological Society of America annual meeting, Portland, OR.

6. #Lane, W., #Bruck, D., #Hubbard, I., Pfirrmann, B.W., Kimball, M.E., **R.P. Dunn**. 2023. Experimental evidence of density-dependent growth (but not mortality) for juvenile penaeid shrimp. Oral presentation, Benthic Ecology Meeting. Miami, FL.
7. #Hutto, C., #D. Phelps, #Z. Hampleton, #P. Davis, #L. Carrington, #I. Whittaker, **R.P. Dunn**, M.R. Brugler. 2023. Characterizing oyster reef biodiversity using eDNA. Poster presentation, USC Beaufort Student Research and Scholarship Day. Beaufort, SC.
8. ***Dunn, R.P.** Species interactions and habitat utilization in changing estuarine environments. 2023. University of South Carolina Beaufort, Department of Natural Sciences Seminar Series. Bluffton, SC.
9. §Batchelder, L., J. Stone, B.W. Pfirrmann, M.E. Kimball, **R.P. Dunn**. 2023. Phenology of juvenile white shrimp *Litopenaeus setiferus* nursery habitat use in North Inlet estuary. Oral presentation, American Fisheries Society South Carolina Chapter annual meeting, Greenville, SC.
10. #Gutierrez, N., **R.P. Dunn**. 2022. Investigating the differences in small-bodied crab communities across salt marsh elevations and vegetation zones. Poster presentation, Ocean Sciences Meeting.

SERVICE / PROFESSIONAL MEMBERSHIPS / SKILLS

Editorial Board member: *Journal of Applied Ecology*

South Atlantic Salt Marsh Initiative: Conservation & Restoration Topic Team member (2021-present)

Ecological Society of America (2017-present)

Western Society of Naturalists (2012-present)