



Katherine Arkema

Senior Research Scientist

Academic Units

 Curriculum Vitae available Online

Bio

BIO

As Lead Scientist at the Natural Capital Project, Katie spearheads several efforts around the world to develop and use science about how nature benefits people to inform problems humans face in managing coastal and marine ecosystems. Katie is particularly interested in the ability of coastal ecosystems to protect vulnerable communities from sea level rise and storms, while providing other services such as nursery habitat for fisheries and tourism opportunities. Her research is informing national development planning, climate adaptation, and investments in restoration and conservation in the United States, Latin America, the Caribbean and Africa. Katie received her Ph.D. in Ecology, Evolution and Marine Biology at the University of California, Santa Barbara and her B.A. in ecology with a minor in Latin American studies from Princeton University. She is a recent recipient of a Fulbright NEXUS scholarship.

ACADEMIC APPOINTMENTS

- Senior Research Scientist, Academic Units
- Academic Research Staff, Natural Capital Project

LINKS

- Katie's bio on Natural Capital Project website: <https://naturalcapitalproject.stanford.edu/katie-arkema-ph-d/>
- Bahamas coastal risk reduction and sustainable development research: <https://www.biographic.com/posts/sto/model-island>

Publications

PUBLICATIONS

- **Linking social, ecological, and physical science to advance natural and nature-based protection for coastal communities.** *Annals of the New York Academy of Sciences*
Arkema, K. K., Griffin, R., Maldonado, S., Silver, J., Suckale, J., Guerry, A. D.
2017
- **The Power of Three: Coral Reefs, Seagrasses and Mangroves Protect Coastal Regions and Increase Their Resilience** *PLOS ONE*
Guannel, G., Arkema, K., Ruggiero, P., Verutes, G.
2016; 11 (7)
- **Embedding ecosystem services in coastal planning leads to better outcomes for people and nature** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*
Arkema, K. K., Verutes, G. M., Wood, S. A., Clarke-Samuels, C., Rosado, S., Canto, M., Rosenthal, A., Ruckelshaus, M., Guannel, G., Toft, J., Faries, J., Silver, J. M., Griffin, et al
2015; 112 (24): 7390-7395
- **Assessing habitat risk from human activities to inform coastal and marine spatial planning: a demonstration in Belize** *ENVIRONMENTAL RESEARCH LETTERS*
Arkema, K. K., Verutes, G., Bernhardt, J. R., Clarke, C., Rosado, S., Canto, M., Wood, S. A., Ruckelshaus, M., Rosenthal, A., McField, M., de Zegher, J.

2014; 9 (11)

- **Coastal habitats shield people and property from sea-level rise and storms** *NATURE CLIMATE CHANGE*
Arkema, K. K., Guannel, G., Verutes, G., Wood, S. A., Guerry, A., Ruckelshaus, M., Kareiva, P., Lacayo, M., Silver, J. M.
2013; 3 (10): 913-918
- **Direct and indirect effects of giant kelp determine benthic community structure and dynamics** *ECOLOGY*
Arkema, K. K., Reed, D. C., Schroeter, S. C.
2009; 90 (11): 3126-3137
- **Evaluating the Benefits of Green Infrastructure for Coastal Areas: Location, Location, Location** *COASTAL MANAGEMENT*
Ruckelshaus, M. H., Guannel, G., Arkema, K., Verutes, G., Griffin, R., Guerry, A., Silver, J., Faries, J., Brenner, J., Rosenthal, A.
2016; 44 (5): 504-516
- **Integrated modeling framework to quantify the coastal protection services supplied by vegetation** *JOURNAL OF GEOPHYSICAL RESEARCH-OCEANS*
Guannel, G., Ruggiero, P., Faries, J., Arkema, K., Pinsky, M., Gelfenbaum, G., Guerry, A., Kim, C.
2015; 120 (1): 324-345
- **Key lessons for incorporating natural infrastructure into regional climate adaptation planning** *OCEAN & COASTAL MANAGEMENT*
Langridge, S. M., Hartge, E. H., Clark, R., Arkema, K., Verutes, G. M., Prahler, E. E., Stoner-Duncan, S., Revell, D. L., Caldwell, M. R., Guerry, A. D., Ruckelshaus, M., Abeles, A., Coburn, et al
2014; 95: 189-197
- **Characterizing coastal foodwebs with qualitative links to bridge the gap between the theory and the practice of ecosystem-based management** *ICES JOURNAL OF MARINE SCIENCE*
Carey, M. P., Levin, P. S., Townsend, H., Minello, T. J., Sutton, G. R., Francis, T. B., Harvey, C. J., Toft, J. E., Arkema, K. K., Burke, J. L., Kim, C., Guerry, A. D., Plummer, et al
2014; 71 (3): 713-724
- **From mountains to sound: modelling the sensitivity of Dungeness crab and Pacific oyster to landsea interactions in Hood Canal, WA** *ICES JOURNAL OF MARINE SCIENCE*
Toft, J. E., Burke, J. L., Carey, M. P., Kim, C. K., Marsik, M., Sutherland, D. A., ARKEMA, K. K., Guerry, A. D., Levin, P. S., Minello, T. J., Plummer, M., Ruckelshaus, M. H., Townsend, et al
2014; 71 (3): 725-738
- **Climate change's impact on key ecosystem services and the human well-being they support in the US** *FRONTIERS IN ECOLOGY AND THE ENVIRONMENT*
Nelson, E. J., Kareiva, P., Ruckelshaus, M., Arkema, K., Geller, G., Girvetz, E., Goodrich, D., Matzek, V., Pinsky, M., Reid, W., Saunders, M., Semmens, D., Tallis, et al
2013; 11 (9): 483-493
- **Quantifying wave attenuation to inform coastal habitat conservation** *ECOSPHERE*
Pinsky, M. L., Guannel, G., Arkema, K. K.
2013; 4 (8)
- **Catching the Right Wave: Evaluating Wave Energy Resources and Potential Compatibility with Existing Marine and Coastal Uses** *PLOS ONE*
Kim, C., Toft, J. E., Papenfus, M., Verutes, G., Guerry, A. D., Ruckelshaus, M. H., Arkema, K. K., Guannel, G., Wood, S. A., Bernhardt, J. R., Tallis, H., Plummer, M. L., Halpern, et al
2012; 7 (11)
- **Linking Ecosystem Health and Services to Inform Marine Ecosystem-Based Management** *Gulf of Maine Symposium: Advancing Ecosystem Research for the Future of the Gulf*
Arkema, K. K., Samhoury, J. F.
AMER FISHERIES SOC.2012: 9-25
- **Density derived estimates of standing crop and net primary production in the giant kelp *Macrocystis pyrifera*** *MARINE BIOLOGY*
Reed, D., Rassweiler, A., Arkema, K.
2009; 156 (10): 2077-2083
- **Flow-mediated feeding in the field: consequences for the performance and abundance of a sessile marine invertebrate** *MARINE ECOLOGY PROGRESS SERIES*
Arkema, K. K.

2009; 388: 207-220

● **Density derived estimates of standing crop and net primary production in the giant kelp** *Marine biology*

Reed, D., Rassweiler, A., Arkema, K.

2009; 156 (10): 2077-2083

● **Spatial patterns of flow and their modification within and around a giant kelp forest** *LIMNOLOGY AND OCEANOGRAPHY*

Gaylord, B., Rosman, J. H., Reed, D. C., Koseff, J. R., Fram, J., Macintyre, S., Arkema, K., McDonald, C., Brzezinski, M. A., Largier, J. L., Monismith, S. G., Raimondi, P. T., Mardian, et al

2007; 52 (5): 1838-1852