

UNIVERSITY OF MIAMI

ROSENSTIEL
SCHOOL of MARINE &
ATMOSPHERIC SCIENCE



Curriculum vitae

Ruben van Hooidonk

Assistant Scientist

Cooperative Institute for Marine and Atmospheric Studies (CIMAS)

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Employment

- 2014-present: CIMAS/NOAA AOML, assistant scientist. Guest lectures in marine biology at UM.
- 2012-2014: CIMAS/NOAA AOML, post-doc, Effects of climate change on coral reefs. Modeling both the effects of ocean acidification and coral bleaching on coral reefs.
- 2010-2012: National Research Council post-doc at NOAA AOML
- 2005-2009: Purdue University, Fulbright PhD candidate and teaching assistant for geology, oceanography, climate change and political science, and meteorology courses. Designed and taught an oceanography course.
- 2003-2004: University of Utrecht, student assistant, assisting students with marine ecology at NIOZ,.

Education

- 2005-2009: PhD at the Earth and Atmospheric department of Purdue University, West- Lafayette, Indiana, USA
- 1997-2004: MSc, Biology, Utrecht University, the Netherlands

Projects

- 2021: Evaluate resilience of US Virgin Islands reefs
- 2020: Created hi-res global coral bleaching projections from CMIP6 models for the UN Environment Programme.
- 2019: Developed a satellite based OA monitoring tool for the US East Coast.
- 2018: Develop climate and resilience-based decision-support tools to maximize coral transplant survivorship and reef recovery in Florida.
- 2015: Develop tools to remotely monitor ocean acidification for NOAA AOML ACCRETE (Acidification, Climate, and Coral Reef Ecosystems TEam).
- 2015: Develop a method to produce high resolution bleaching projections using statistical downscaling of global climate models.
- 2014: Provide OA data for the UN Environment Programme Transboundary Waters Assessment Programme.
- 2014: Provide OA data for the National Socio-Environmental Synthesis Center (SESYNC) project: "Using Spatial Data and Analysis to Understand the Human Impacts of Ocean Acidification".

2012: *Open Oceans*, chapter 30 of Working group II of the IPCC's 5th assessment rapport. Analyzed data from climate models included in this chapter, identifies past and future variabilities, trends and patterns in variables of importance to marine ecosystems.

Publication Highlights

Over 25 peer reviewed publications, >3000 citations >2600 citations since 2016, h-index 22, i10-index 29
<https://scholar.google.com/citations?user=0ioEdTYAAAAJ>

Cornwall C.E., Comeau S., Kornder N.A., Perry C.E., **van Hooidonk R.**, et al. (2021) Global declines in coral reef calcium carbonate production under ocean acidification and warming. PNAS 118 (21) e2015265118; DOI: 10.1073/pnas.2015265118

Bruno, J. F., Bates, A. E., Cacciapaglia, C., Pike, E. P., Amstrup, S. C., **van Hooidonk, R.**, et al. (2018). Climate change threatens the world's marine protected areas. Nat. Clim. Change 8, 499–503. doi: 10.1038/s41558-018-0149-2

van Hooidonk R.J., Maynard J, Tamelander J et al. (2016) Local-scale projections of coral reef futures and implications of the Paris Agreement. Nature Scientific Reports 1–8.

Maynard, J., **van Hooidonk, R. J.**, Harvell, C. D., Eakin, C. M., Liu, G., Willis, B. L., et al. (2016). Improving marine disease surveillance through sea temperature monitoring, outlooks and projections. Philosophical Transactions of the Royal Society of London. Series B, Biological Sciences, 371(1689). <http://doi.org/10.1098/rstb.2015.0208>

Keith, S. A., Maynard, J. A., Edwards, A. J., Guest, J. R., Bauman, A. G., **van Hooidonk, R.**, et al. (2016). Coral mass spawning predicted by rapid seasonal rise in ocean temperature. Proceedings of the Royal Society B: Biological Sciences, 283(1830). <http://doi.org/10.1098/rspb.2016.0011>

Maynard, J., Beeden, R., Puotinen, M., Johnson, J. E., Marshall, P., **van Hooidonk, R.**, et al. (2015). Great Barrier Reef no-take areas include a range of disturbance regimes. Conservation Letters. <http://doi.org/10.1111/conl.12198>

Yates, K. K., Turley, C., Hopkinson, B. M., Todgham, A. E., Cross, J. N., Greening, H., **van Hooidonk, R.** et al. (2015). Transdisciplinary science: A path to understanding the interactions among ocean acidification, ecosystems, and society. Oceanography, 28(2), 212–225. <http://doi.org/10.5670/oceanog.2015.43>

Maynard, J., **van Hooidonk, R.**, Eakin, C. M., Puotinen, M., Garren, M., Williams, G., et al. (2015). Projections of climate conditions that increase coral disease susceptibility and pathogen abundance and virulence, 1–8. <http://doi.org/10.1038/nclimate2625>

van Hooidonk, R., Maynard, J. A., Liu, Y., & Lee, S.-K. (2015). Downscaled projections of Caribbean coral bleaching that can inform conservation planning. Global Change Biology, 1–13. <http://doi.org/10.1111/gcb.12901>

Ekstrom, J. A., Suatoni, L., Cooley, S. R., Pendleton, L. H., Waldbusser, G. G., Cinner, J. E., **van Hooidonk, R.** et al. (2015). Vulnerability and adaptation of US shellfisheries to ocean acidification. Nature Climate Change <http://doi.org/10.1038/nclimate2508>

van Hooidonk, R., Maynard, J. A., Manzello, D., & Planes, S. (2014). Opposite latitudinal gradients in projected ocean acidification and bleaching impacts on coral reefs. *Global Change Biology*, 103–112. doi:10.1111/gcb.12394

van Hooidonk, R., van Hooidonk, R., Maynard, J. A., & Planes, S. (2013). temporary refugia for coral reefs in a warming world. *Nature Climate Change*, 3(4), 1–4. doi:10.1038/nclimate1829

Nugues, M. M., Smith, G. W., **Hooidonk, R. J.**, Seabra, M. I., & Bak, R. P. M. (2004). Algal contact as a trigger for coral disease. *Ecology Letters*, 7(10), 919–923. doi:10.1111/j.1461-0248.2004.00651.x

Presentations and Outreach

- 2016: International Coral Reef Symposium, Hawaii USA, talk: Downscaled projections of coral bleaching conditions that can inform conservation planning.
- 2015: TEDxCoralGables, The Importance of Coral Reef Conservation.
- 2014: American Museum of Natural History, data visualization and a google+ hangout: "Warm Forecast for Coral Reefs".
- 2012: International Coral Reef Symposium, Cairns Australia, talk: Predicting coral reef futures using IPCC AR5 models.
- 2011: American Geophysical Union fall meeting, poster: Effects of modeled tropical sea surface temperature variability on coral reef bleaching predictions.

Grants and Awards

Co PI and team member on numerous grants from USGS, PICSC, NOAA, UNEP, the Total Foundation, National Marine Fisheries, World Wildlife Fund, the National Fish and Wildlife Foundation Coral Reef Conservation Fund, PICCC and NOAA CPO.

- 2021: CRCP Reef resilience in the USVI, CRCP \$125k
- 2017: Projections of climate change impacts on coral reefs using next generation of GCMs \$30k.
- 2016: Coral Reef Conservation Program "Climate and resilience-based decision-support tools to maximize coral transplant survivorship and reef recovery in Florida" \$68k.
- 2015: Coral Reef Conservation Program "Monitoring Ocean Acidification from Space in the Pacific" \$25k.
- 2014: Coral Reef Conservation Program "Modeling reef futures using a high resolution modular ocean model" \$92K.
- 2010: National Research Council research associate fellowship.
- 2005: Fulbright grant to study in the USA.

Skills

To retrieve, analyze, visualize and store data from climate models and remotely sensed data, I've developed skills and expertise in many areas. These include specific skills needed to work with large datasets and computational extensive tasks:

- scripting in R and in shells (tcsh, bash, zhs)
- using computer clusters and scheduling software (PBS/SLURM)
- analyzing and visualizing large data using the NCAR Command Language (NCL), Climate Data Operators (CDO) and Python
- working with geo-referenced data (NetCDF, HDF)
- familiarity with QGIS and ArcGIS