Hao Ye

CONTACT INFORMATION

Wildlife Ecology and Conservation
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WWW: https://haoye.us
GitHub: https://github.com/ha0ye

http://scholar.google.com/citations?user=8hToXlwAAAAJ&hl=en

RESEARCH INTERESTS

Time Series, Stability / Resilience, Forecasting, Dynamic Systems, Causal Inference

EDUCATION

Ph.D., Oceanography, University of California, San Diego	2015
M.S., Oceanography, University of California, San Diego	2011
M.A., Psychology, University of California, San Diego	2007
B.S., Computer Science, California Institute of Technology	2006

EMPLOYMENT

University of Florida
Postdoctoral Associate 2017 - present

University of California, San Diego
Postdoctoral Scholar 2015 - 2017

PUBLICATIONS

2019, Pennekamp, F., Iles, A., Garland, J., Brennan, G„ Brose, U., Gaedke, Ursula, J., Ute, K., P., Matthews, B., Munch, S., Novak, M., Palamara, G. M., Rall, B., Rosenbaum, B., Tabi, A., Ward, C., Williams, R., **Ye, H.**, and O. Petchey. The intrinsic predictability of ecological time series and its potential to guide forecasting. *Ecological Monographs*. **89**: e01359.

2019, Christensen, E.M., Yenni, G.M., **Ye, H.**, Simonis, J.L., Bledsoe, E.K., Diaz, R., Taylor, S.D., White, E.P., and S.K.M. Ernest. portalr: an R package for summarizing and using the Portal Project Data. *Journal of Open Source Software*. **4**: 1098.

2018, Sugihara, G., Criddle, K.R., McQuown, M., Giron-Nava, A., Deyle, E., James, C., Lee, A., Pao, G., Saberski, E., **Ye, H.**. Comprehensive incentives for reducing Chinook salmon bycatch in the Bering Sea walleye Pollock fishery: Individual tradable encounter credits. *Regional Studies in Marine Science* **22**: 70-81.

2018, Deyle, E., Schueller, A., **Ye, H.**, Pao, G. M., and G. Sugihara. Ecosystem-based forecasts of recruitment in two menhaden species. *Fish and Fisheries* **19**: 769-781.

2018, Ushio, M., Hsieh, C.H., Masuda, R., Deyle, E., **Ye, H.**, Chang, C.W., Sugihara, G., and M. Kondoh. Fluctuating interaction network and

time-varying stability of a natural fish community. *Nature* **554**: 360-363.

2018, Tsonis, A.A., Deyle, E.R., **Ye, H.**, and G. Sugihara. Convergent Cross Mapping: Theory and an Example. In: Tsonis A. (eds) *Advances in Nonlinear Geosciences*: 587-600. Springer, Cham.

2017, Giron-Nava, A., James, C., Johnson, A., Dannecker, D., Kolody, B., Lee, A., Nagarkar, M., Pao, G., **Ye, H.**, Johns, D.G., and G. Sugihara. Quantitative argument for long-term ecological monitoring. *Marine Ecology Progress Series* **572**: 269-274.

2017, Sugihara, G., Deyle, E.R., and **H. Ye.** Reply to Baskerville and Cobey: Misconceptions about causation with synchrony and seasonal drivers *Proceedings of the National Academy of Sciences* **114**: E2272-E2274.

2017, McGowan, J.A.*, Deyle, E.R.*, **Ye, H.***, Carter, M.L., Perretti, C.T., Seger, K.D., de Verneil, A., and G. Sugihara*. Prediction of coastal algal blooms in Southern California. *Ecology* **98**: 1419-1433. (* = co-first authors)

2017, Storch, L.S., Glaser, S.M., **Ye, H.**, and A.A. Rosenberg. Stock assessment and end-to-end ecosystem models alter dynamics of fisheries data. *PLOS ONE* **12**: e0171644.

2016, **Ye, H.**, and G. Sugihara. Information leverage in interconnected ecosystems: Overcoming the curse of dimensionality. *Science* **353**: 922-925.

2015, **Ye, H.**, Sugihara, G., Deyle, E.R., May, R.M., Swanson, K., and A.A. Tsonis. Reply to Luo et al.: Robustness of causal effects of galactic cosmic rays on interannual variation in global temperature. *Proceedings of the National Academy of Sciences* **112**: E4640-4641.

2015, **Ye, H.**, Deyle, E.R., Gilarranz, L.J., and G. Sugihara. Distinguishing time-delayed causal interactions using convergent cross mapping. *Scientific Reports* **5**: 14750.

2015, van Nes E.H., Scheffer, M., Brovkin, V., Lenton, T.M., **Ye, H.**, Deyle, E., and G. Sugihara. Causal feedbacks in climate change. *Nature Climate Change* **5**: 445-448.

2015, Clark, A.T., **Ye, H.**, Isbell, F., Deyle, E.R., Cowles, J., Tilman, D., and G. Sugihara. Spatial 'convergent cross mapping' to detect causal relationships from short time-series. *Ecology* **96**: 1174-1181.

2015, **Ye, H.**, Sugihara, G., Hsieh, C.H., Glaser, S.M., Grant, S.C.H., Richards, L.J., Schnute, J.T., and R.J. Beamish. Equation-free mechanistic ecosystem forecasting using empirical dynamic modeling. *Proceedings of the National Academy of Sciences* **112**: E1569-E1576.

2015, **Ye, H.**, Deyle, E.R., and G. Sugihara. Predicting the future in a nonlinear world. *CalCOFI Reports* **56**: 88-91.

2014, Liu, H., Fogarty, M.J., Hare, J.A., Hsieh, C.H., Glaser, S.M., **Ye, H.**, Deyle, E., and G. Sugihara. Modeling dynamic interactions and coherence between marine zooplankton and fishes linked to environmental variability.

Journal of Marine Systems **131**: 120-129.

2014, Glaser, S.M., **Ye, H.**, and G. Sugihara. A nonlinear, low data requirement model for producing spatially-explicit fishery forecasts. *Fisheries Oceanography* **23**: 45-53.

2014, Glaser, S.M., Fogarty, M.J., Liu, H., Altman, I., Hsieh, C.H., Kaufman, L., MacCall, A.D., Rosenberg, A.A., **Ye, H.**, and G. Sugihara. Complex dynamics may limit prediction in marine fisheries. *Fish and Fisheries* **15**: 616-633.

2013, Deyle, E., Fogarty, M., Hsieh, C.H., Kaufman, L., MacCall, A., Munch, S., Perretti, C., **Ye, H.**, and G. Sugihara. Predicting climate effects on Pacific sardine. *Proceedings of the National Academy of Sciences* **110**: 6430-6435.

2012, Sugihara, G., May, R., **Ye, H.**, Hsieh, C.H., Deyle, E., Fogarty, M., and S. Munch. Detecting causality in complex ecosystems. *Science* **338**: 496-500.

2011, Sugihara, G., Beddington, J., Hsieh, C.H., Deyle, E., Fogarty, M., Glaser, S.M., Hewitt, R., Hollowed, A., May, R.M., Munch, S.B., Perretti, C., Rosenberg, A.A., Sandin, S., and **H. Ye** Are exploited fish populations stable? *Proceedings of the National Academy of Sciences* **108**: E1224-E1225.

2009, Sugihara, G. and **H. Ye** Cooperative network dynamics. *Nature* **458**: 979-980. 2011, Glaser, S.M., **Ye, H.**, Maunder, M.N., MacCall, A.D., Fogarty, M.J., and G. Sugihara. Detecting and forecasting complex nonlinear dynamics in spatially-structured catch-per-unit-effort time series for North Pacific albacore. *Canadian Journal of Fisheries and Aquatic Sciences* **68**: 400-412.

2009, Kilcik, A., Anderson, C.N.K., Rozelot, J.P., **Ye, H.**, Sugihara, G. and A. Ozguc. Nonlinear prediction of solar cycle 24. *The Astrophysical Journal* **693**: 1173-1177.

2006, Changizi, M.A., Zhang, Q., **Ye, H.** and S. Shimojo. The structures of letters and symbols throughout human history are selected to match those found in objects in natural scenes. *The American Naturalist* **167**: E117-139.

Honors and Awards

Moore Foundation - *Data Fellow*	2017 - present
SIO - *E.A. Frieman Director's Prize*	2015
SIO - *E.W. Fager Memorial Award*	2014
World Conference on Natural Resource Modeling - *Student Award*	2010

Grants

2019, NSF DEB 1929730 - $637,157 (senior personnel; PI: Morgan Ernest)

2017, NSF DEB 1655203 - $407,000 (senior personnel; PI: George Sugihara)

2017, NSF ABI 1660584 - $658,634 (senior personnel; PI: George Sugihara)

2014, Lenfest Ocean Program 00028335 - $337,100 (senior personnel; PI: George Sugihara)

2014, US DOD SERDP 15 RC-2509 - $817,046 (senior personnel; PI: George Sugihara)

2010, NSF Graduate Research Fellowship - $125,000

Teaching Qualifications

Certified Instructor, The Carpentries
Software Carpentry Instructor Training — March 5-6 2018

UC Learning Certificate
Teaching + Learning at the College Level — Winter 2017
UCSD Teaching + Learning Commons

Teaching Experience

University of Florida

Instructor, Data/Software Carpentry Workshops
R for Social Scientists — February 10-11 2020
Version Control with Git — August 15-16 2018
Data Analysis and Visualization in R for Ecologists — June 25-26 2018

Helper, Data/Software Carpentry Workshops
R, the Unix Shell, and Git — February 11-12, 2019
R, the Unix Shell — January 22-23 2018

University of Minnesota

Instructor, Software Carpentry Workshops
R for Reproducible Scientific Analysis — January 15-16 2019

University of California, San Diego

Instructor
Reproducible Research in Ocean Biosciences — Spring 2017
(https://github.com/Open-Data-Science-at-SIO/RRROBOTS)

Intro. to Data Visualization — Winter 2017
(https:
//github.com/Open-Data-Science-at-SIO/Intro-Data-Viz-Winter-2017)

Helper, Software Carpentry Workshops
The Unix Shell — May 23, 2017

Teaching Assistant
Psych 60 (Intro to Statistics) — Fall 2006, Summer 2007, Summer 2008
Psych 102 (Sensation and Perception) — Winter 2008
Psych 138 (Sound and Music Perception) — Spring 2008

California Institute of Technology

Teaching Assistant
CS 1 (Intro to Computer Programming) — Fall 2003, Fall 2004, Fall 2005

Software Packages

`MATSS` — https://github.com/weecology/MATSS
Author — DOI: 10.5281/zenodo.3333008

rEDM *Author*	https://github.com/ha0ye/rEDM DOI: 10.5281/zenodo.596502
portalR *Author*	https://github.com/weecology/portalr DOI: 10.5281/zenodo.1429290
LDATS *Contributor*	https://github.com/weecology/LDATS DOI: 10.5281/zenodo.3286617
portalcasting *Contributor*	https://github.com/weecology/portalcasting DOI: 10.5281/zenodo.3332973

Open Educational Resources

2019, Michonneau, F., Teal, T., Fournier, A., Seok, B., Obeng, A., Pawlik, A. N., [and 98 others, including **Ye, H.**]. Data Carpentry: Data Analysis and Visualization in R for Ecologists, June 2019 (Version v2019.06.1). Zenodo. https://doi.org/10.5281/zenodo.3264888

2019, Ernest, M., White, E., **Ye, H.**, and D.J. Harris. weecology/forecasting-dynamics-course, March 2019 v0.1.0 (Version v0.1.0). Zenodo. https://zenodo.org/record/2583176

2018, Smyth, P., Fung, J., Quinn, D., **Ye, H.**, Bowden, N., LaFlair, G., Waring, E., Jared, J., Cadzow, M., Michonneau, F., and E. Becker. datacarpentry/r-socialsci: R for Social Sciences, May 2018 (v1) (Version v2018.05-1). Zenodo. https://doi.org/10.5281/zenodo.1250066

Organized Symposia and Workshops

2020, Ally Skills Workshop. *Gainesville Ally Skills Network*. March 17, Gainesville, FL.

2019, Ally Skills Workshop. *Gainesville Ally Skills Network*. October 14, Gainesville, FL.

2019, Research Bazaar Gainesville. September 11-13, Gainesville FL.

2019, Software Carpentry Workshop. *UF Carpentries Club*, February 11-12, Gainesville, FL.

2018, Nonlinear Dynamics Workshop. (Tutorial session) *NOAA National Marine Fisheries Service*, November 13-15, Santa Cruz, CA.

2018, Research Bazaar Gainesville. August 15-17, Gainesville FL.

2017, Empirical Dynamic Modeling for Fisheries Prediction and Management. (Symposium Chair) *AFS Annual Meeting*, August 20-24, Tampa, FL.

2015, A Hands-on Tutorial in Empirical Dynamic Modeling and Convergent Cross Mapping. (Workshop Organizer) *ESA Annual Meeting*, August 9-14, Baltimore, MD.

2015, A Hands-on Tutorial in Empirical Dynamic Modeling and Convergent Cross Mapping. (Session Organizer) *Nonlinear Time Series Modeling Workshop, CIMAS, University of Miami*, March 19-20, Miami, FL.

2012, Nonlinear Time Series Workshop (Session Organizer) *Scripps Institution*

of Oceanography / NOAA National Marine Fisheries Service, April 17-19, La Jolla, CA.

Attended Symposia and Workshops

2019, eLife Innovation Sprint. *eLife*, September 4-5, Cambridge, United Kingdom.

2019, Ally Skills (Train-the-Trainers) Workshop. *Frame Shift Consulting / University of Florida*, May 7, Gainesville, FL.

2019, Ally Skills Workshop. *Frame Shift Consulting / University of Florida*, May 6, Gainesville, FL.

2018, Ecological Knowledge and Predictions: Integrating Across Networks and National Observatories. *NSF OISE*, February 19-21, Tucson, AZ.

2017, sPred Working Group 2 - Synthesizing Predictability Research of Ecological Dynamics. *German Centre for Integrative Biodiversity Research*, October 23-27, Leipzig, Germany.

2017 Working Open Workshop. *Mozilla Science Lab*, March 10-11, Montréal, Canada.

Invited Talks

2020, How to be an Ally for Fellow STEM Students. *iDigTRIO Biological Sciences Conference*, February 22, Gainesville, FL.

2020, Deducing mechanism from ecological time series using data-driven modeling. *BSU Biology Seminar*, January 23, Boise, ID.

2019, Distilling observation into understanding: Data-driven modeling of ecological time series. *SBU Ecology and Evolutionary Biology*, November 25, Stony Brook, NY.

2018, Data-driven Modeling of Ecological Dynamics. *UNL School of Natural Resources*, October 31, Lincoln, NE.

2018, Dynamic Indicators of Ecosystem Resilience. *ESA Annual Meeting Symposium "From Theory to Application: Addressing Outstanding Challenges to Operationalizing Resilience"*, August 5-10, New Orleans, LA.

2017, Data-driven Modeling of biological systems. *UF Biocomplexity Engineering Group Seminar*, December 5, Gainesville, FL.

2017, Data-driven Modeling of Biological Systems. *Institute for Systems Biology*, November 20, Seattle, WA.

2017, Data-driven Modeling of Biological Systems. *Cary Institute*, October 20, Millbrook, NY.

2017, Open Science and Reproducible Research. (Panel Discussion) *Research Bazaar Arizona*, March 31-April 1, Tucson, AZ.

2017, Data-driven Modeling of Biological Systems. *University of Zurich Symposium on Ecological Modeling*, March 13, Zurich, Switzerland.

2017, Open Science: Challenges and opportunities for research in the digital age. *SIO Ecology Seminar*, February 15, La Jolla, CA.

2017, Data-driven Modeling of Complex Biological Systems. *University of Vermont Complex Systems Center*, January 23, Burlington, VT.

2016, Understanding Biological Systems with Empirical Dynamic Modeling. *Lenfest Ocean Program*, December 20, Washington, DC.

2016, Addressing nonlinearity in biological systems. *UCSC/SWFSC Ecology Seminar*, June 14, Santa Cruz, CA.

2016, Understanding nonlinearity in complex natural systems. *SIO Institutional Seminar Series*, March 30, La Jolla, CA.

2015, Information leverage in complex systems. *International workshop on development and application of empirical dynamic modeling for forecasting nonlinear systems*, September 16-18, Taipei, Taiwan.

2014, Predicting the future in a nonlinear world. *California Cooperative Oceanic Fisheries Investigations (CalCOFI) Conference*, December 8-10, La Jolla, CA.

2014, rEDM: an R package for empirical dynamic modeling. *SIO/NOAA Quantitative Ecology Seminar*, March 3, La Jolla, CA.

2011, Using state space reconstruction models to understand the ecology of Fraser River sockeye salmon (*Oncorhynchus nerka*). *Marine Biology Seminar, Institute of Oceanography, National Taiwan University*, November 9, Taipei, Taiwan.

2009, Reducing Chinook salmon bycatch with market-based incentives: individual tradable encounter credits (ITEC). *North Pacific Fishery Management Council*, February 2, Seattle, WA.

Professional Service

Methods in Ecology and Evolution
Associate Editor November 2018 - present

Am Nat, Ecology, Ecosphere, J Open Sour Softw, Mar Eco Prog Ser, Mar Mammal Sci, Methods Eco Evol, Nat Comm, Oikos PLOS One, PNAS, Science, Sci Rep
Reviewer

Gainesville Ally Skills Network
Organizer, Workshop Instructor 2019 - present

UF Carpentry Club
Board Member 2018 - 2019

Mozilla Open Leadership Training Series
Mentor Spring 2019 (via Open Life Science), Fall 2018, Spring 2018
Participant Spring 2017

SIO Open Data Science

Co-founder and organizer 2016 - 2017

SIO R-Users Group
Co-founder and organizer 2010 - 2015

Grassroots Diversity Action Working Group at SIO
Volunteer Tutor 2010 - 2012

The Preuss School UCSD Oceanography Club
Mentor (Oceanography Club, Middle School Math Club 2006 - 2008