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EDUCATION

2001-2006 **Ph.D.** Scripps Institution of Oceanography, University of California-San Diego, USA

1999-2001 **M.Sc.** Department of Zoology, National Taiwan University, Taipei, Taiwan

1993-1997 **B.Sc.** Department of Zoology, National Taiwan University, Taipei, Taiwan

EMPLOYMENT

2015- **Professor** Institute of Oceanography, Institute of Ecology and Evolutionary Biology, and Department of Life Science, National Taiwan University

Research Fellow Research Center for Environmental Changes, Academia Sinica

2014- **Professor** Institute of Oceanography and Institute of Ecology and Evolutionary Biology, National Taiwan University

2011-2014 **Associate Professor** Institute of Oceanography and Institute of Ecology and Evolutionary Biology, National Taiwan University

2008-2011 **Assistant Professor** Institute of Oceanography and Institute of Ecology and Evolutionary Biology, National Taiwan University.

2007-2008 **Assistant Professor** Institute of Oceanography, National Taiwan University.

2007-2007 **PostDoc** National Center for Ocean Research, National Taiwan University

2006-2007 **Research Scientist** Institute of Marine Environmental Chemistry and Ecology, National Taiwan Ocean University

2006-2007 **PostDoc** Center for Ecological Research, Kyoto University, Japan

HONORS & AWARDS

2019 Ministry of Science and Technology Outstanding Research Award 科技部傑出研究獎

2018 National Taiwan University teaching award

2015 Ministry of Science and Technology Outstanding Research Award 科技部傑出研究獎

2015 Biwako Prize for Ecology

2014 Ten Outstanding Young Persons of Taiwan 十大傑出青年

2013 Young Scientist Research Innovation Award. Foundation for the Advancement of Outstanding Scholarship 財團法人傑出人才發展基金會年輕學者創新獎

2010 National Science Council Dr. Da-Yu Wu Memorial Award for outstanding young researcher

吳大猷獎

- 2010 National Taiwan University teaching award
- 2007 Young researcher award, Early Career Scientists Conference- New Frontiers in Marine Science
- 2004 Fellowship, the Edna Bailey Sussman Foundation
- 2002 Young researcher award, Eighth International Conference on Copepoda. World Association of Copepodologists

PROFESSIONAL SERVICE

- Member of Faculty of 1000- Ecology
- Member of Scientific Committee on Oceanic Research (SCOR)
- The ROC National Committee for Global Biodiversity Information Facility (GBIF) (2007-2023)
- Ocean Science working group member for Future Earth
- Editor-PloS ONE
 - Population Ecology
 - Journal of Marine Science and Technology-Taiwan
 - Frontiers in Marine Science
- Reviewer- Publons profile
(<https://publons.com/researcher/1209357/chih-hao-hsieh/peer-review/>)

General ecology:

Nature Ecology & Evolution; Nature Microbiology; Nature Communications; Ecology Letters; Trends in Ecology and Evolution; Current Biology; Ecology; Global Change Biology; Proceedings of the Royal Society of London B; Fish and Fisheries; Journal of Applied Ecology; Ecological Applications; Journal of Animal Ecology; Oikos; Oecologia; Evolutionary Ecology; Scientific Reports; PLoS ONE; Journal of Theoretical Biology; Population Ecology; Theoretical Ecology

Limnology and Oceanography:

Progress in Oceanography; Limnology and Oceanography; Limnology and Oceanography: Methods; Biogeosciences; Journal of Geophysical Research; Aquatic Sciences; Marine Environmental Research; Marine Ecology Progress Series; Frontiers in Marine Science; Fisheries Oceanography; Canadian Journal of Fisheries and Aquatic Sciences; Journal of Marine System; Deep Sea Research II; ICES Journal of Marine Sciences; Journal of Sea Research; Journal of Oceanography; Aquatic Microbial Ecology; Estuarine, Coastal and Shelf Science; Aquatic Living Resources; Journal of Marine Science and Technology; Journal of the Marine Biological

Association of the United Kingdom; Marine Biodiversity Records; Knowledge and Management of Aquatic Ecosystems; Marine Biology Research; Limnology; Crustaceana; Journal of Applied Ichthyology; Fundamental and Applied Limnology; Terrestrial, Atmospheric and Oceanic Sciences

Others:

Physica D; Trends in Biotechnology; BMC Biology; Environmental Microbiology; Applied and Environmental Microbiology; Canadian Journal of Zoology, Zoological Studies

- Grant reviewer- National Science Foundation (USA), Canada First Research Excellence Fund (Canada), Marsden Fund (New Zealand), Ministry of Science and Technology (Taiwan)

RESEARCH INTEREST

1. Nonlinear dynamical system and its application in biology
2. Investigating fishing effects on fish populations in the context of a changing climate
3. Investigating human disturbance on lake ecosystems in the context of a changing climate
4. Plankton ecology and its role in the marine foodweb

RESEARCH HIGHLIGHTS

- Developments and applications of time series analysis methods in nonlinear dynamical systems.
- Developments and applications of automated image analysis systems for plankton community structure and foodweb interactions.
- Developments and applications of methods based on high-throughput DNA sequences for evolutionary community ecology.

REPRESENTATIVE PUBLICATIONS (*: corresponding author)

1. Wang J. Y., T. C. Kuo, and **C. H. Hsieh*** (2020) Causal effects of population dynamics and environmental changes on spatial variability of marine fish. Nature Communications. 11: 2635.
2. Ho, P. C., E. Wong, F. S. Lin, A. R. Sastri, C. García-Comas, N. Okuda, F. K. Shiah, G. C. Gong, R. S.W. Yam and **C. H. Hsieh*** (2020) Prey stoichiometry and phytoplankton and zooplankton composition influence the production of marine crustacean zooplankton. Progress in Oceanography. 186: 102369.
3. Lin, F. S., P. C. Ho, A. R. Sastri, C. C. Chen, G. C. Gong, S. Jan, and **C. H. Hsieh*** (2020) Resource availability determines temporal variation of phytoplankton size structure in the Kuroshio east of Taiwan. Limnology and Oceanography. 65: 236-246. doi: 10.1002/lno.11294
4. Ye, L., C. W. Chang, S. S. Matsuzaki, N. Takamura, C. E. Widdicombe, and **C. H. Hsieh***

- (2019) Functional diversity promotes phytoplankton resource use efficiency. *Journal of Ecology*. 107: 2353-2363.
5. Lu, H. P., Y. C. Yeh, F. K. Shiah, G. C. Gong, and **C. H. Hsieh*** (2019) Evolutionary constraint on species diversity in marine bacterioplankton communities. *ISME Journal*. 13: 1032-1041.
 6. Yang, J. W., W. Wu, C. C. Chung, K. P. Chiang, G. C. Gong, and **C. H. Hsieh*** (2018) Predator and prey biodiversity relationship and consequences on marine ecosystem functioning—Interplay between nanoflagellates and bacterioplankton. *ISME Journal*. 12: 1532-1542.
 7. Ushio, M., C. H. Hsieh, R. Masuda, E. Deyle, H. Ye, C. W. Chang, G. Sugihara, and M. Kondoh* (2018) Fluctuating interaction network and dynamic stability of natural fish community. *Nature* 554: 360-363.
 8. Wu, W., H. P. Lu, A. R. Sastri, Y. C. G. C. Gong, W. C. Chou, and **C. H. Hsieh*** (2018) Contrasting the relative importance of species sorting and dispersal limitation in shaping marine bacterial versus protist communities. *ISME Journal*. 12: 485-494.
 9. García-Comas, C., A. R. Sastri, L. Ye, C. Y. Chang, F. S. Lin, G. C. Gong, and **C. H. Hsieh*** (2016) Predator size diversity promotes biomass trophic transfer and prey size diversity hinders it in planktonic communities. *Proceedings of the Royal Society, B-Biological Sciences*. 283: 20152129
 10. Kuo, T. C., S. Mandal, A. Yamauchi, and **C. H. Hsieh*** (2016) Life history traits and exploitation affect the spatial mean-variance relationship in fish abundance. *Ecology*. 97: 1251-1259
 11. Yeh Y. C., P. Peres-Neto, S. W. Huang, Y. C. Lai, C. Y. Tu, F. K. Shiah, G. C. Gong, and **C. H. Hsieh*** (2015) Determinism of bacteria metacommunity dynamics in the southern East China Sea varies depending on hydrography. *Ecography*. 38: 198-212.
 12. Chang C. W., T. Miki, F. K. Shiah, S. J. Kao, J. T. Wu, A. R. Sastri, and **C. H. Hsieh*** (2014) Linking secondary structure of individual size distribution with nonlinear size-trophic level relationship in food webs. *Ecology*. 95: 897-909.
 13. Tsai, C. H., T. Miki, C. W. Chang, K. Ishikawa, S. Ichise, M. Kumagai, and **C. H. Hsieh*** (2014) Phytoplankton functional group dynamics explain species abundance distribution in a directionally changing environment. *Ecology*. 95: 3335-3343.
 14. Ye, L., C. Y. Chang, C. García-Comas, G. C. Gong, and **C. H. Hsieh*** (2013) Increasing zooplankton size diversity enhances the strength of top-down control on phytoplankton through diet niche partitioning. *Journal of Animal Ecology*. 85: 1052-1061.
 15. Sugihara*, G., R. May, H. Ye, C. H. Hsieh*, E. Deyle, M. Fogarty, and S. Munch (2012)

Detecting causality in complex ecosystems. Science 338: 496-500

16. **Hsieh*, C.H.**, H.J. Kim, W. Watson, E. Di Lorenzo, and G. Sugihara (2009) Climate-driven changes in abundance and distribution of larvae of oceanic fishes in the southern California region. *Global Change Biology*. 15: 2137-2152.
17. **Hsieh*, C.H.**, S.C. Reiss, R.P. Hewitt, G. Sugihara (2008) Spatial analysis shows fishing enhances the climatic sensitivity of marine fishes. *Canadian Journal of Fisheries and Aquatic Sciences*, 65: 947-961
18. Anderson, C.N.K., **C.H. Hsieh**, S.A. Sandin, R. Hewitt, A. Hollowed, J. Beddington, R.M. May, and G. Sugihara* (2008). Why fishing magnifies fluctuations in fish abundance. *Nature*, 452: 835-839
19. **Hsieh, C.H.**, S.C. Reiss, J. R. Hunter, J.R. Beddington, R. M. May, and G. Sugihara* (2006) Fishing elevates variability in the abundance of exploited species. *Nature*. 443: 859-862.
20. **Hsieh, C.H.**, S.M. Glaser, A.J. Lucas, and G. Sugihara* (2005) Distinguishing random environmental fluctuations from ecological catastrophes for the North Pacific Ocean. *Nature*. 435: 336-340.

INVITED PRESENTATION (2015 - Present)

Hsieh C. H. (2019) Empirical dynamical modeling toward ecosystem-based fisheries managements. 4th Asian Marine Biology Symposium. 4-6 Nov. Taipei, Taiwan.

Hsieh C. H. (2019) Empirical dynamical modeling toward ecosystem-based fisheries managements. Conference on Complex Systems 2019. 30 Sep – 2 Oct, Singapore. (Keynote speech)

Hsieh C. H. (2018) Copepod community growth rates in relation to body size, temperature, and food availability in the East China Sea: A test of metabolic theory of ecology. 2018 PICES Annual Meeting. 25 Oct – 3 Nov, Yokohama, Japan.

Hsieh C. H. (2018) Prey stoichiometry influences growth rate and production of marine zooplankton. 2018 PICES Annual Meeting. 25 Oct – 3 Nov, Yokohama, Japan. (Keynote speech).

Hsieh C. H. (2018) Empirical dynamical modeling toward ecosystem-based fisheries managements. The 4th Climate impacts on oceanic top predators symposium. 15-19 Oct, Keelung, Taiwan (Plenary speech).

Hsieh C. H. (2018) Empirical dynamical modeling toward ecosystem-based fisheries managements. The 3rd International Symposium on Fisheries Oceanography, 1-4 Aug, Qingdao, China (Keynote speech).

Hsieh C. H. (2017) Fishing and life history traits effects on the spatial mean-variance

- relationship in fish abundance. 12th International Congress of Ecology, 20-25, Aug, Beijing, China.
- Hsieh C. H. (2017) Food quantity and quality affect trophic transfer efficiency and size-trophic level relationship in marine plankton. Plankton biodiversity, dynamic eco- physiology, and ecosystem function. 15-17, Feb, Bremen, Germany.
- Hsieh C. H., Masayuki Ushio, and Chun-Wei Chang (2016) Empirical dynamic modeling. 5th Taiwan-Japan Ecology Workshop: 12-14 Nov. Kyoto, Japan. (EDM hand-on training course)
- Hsieh C. H. (2016) Empirical dynamic modeling for understanding and forecasting dynamic systems. 2016 Annual meeting of the Japanese Society of Mathematical Biology. 7-9 Sep, 2016. Fukuoka, Japan.
- Hsieh C. H. (2016) Life history traits and exploitation affect the spatial mean-variance relationship in fish abundance. 2016 Annual meeting of the Asian Society of Ichthyologists. 18-21 May, 2016, Taipei, Taiwan (Keynote speech).
- Hsieh C. H. (2015) Forecasting climate effects on marine resources. The 16th APEC roundtable meeting on the involvement of the business/private sector in the sustainability of the marine environment. 28-30, Oct, 2015, Taipei, Taiwan.
- Hsieh C. H. (2015) Equation-free mechanistic ecosystem forecasting. Nonlinear Dynamics in Biology: from Time Series to Knowledge. 25, Aug, Munster, Germany (Keynote speech).
- Hsieh C. H. (2015) Detecting causality in complex ecosystems: its applications in ecosystem management. The Second Xiamen Symposium on Marine Environmental Sciences. 7-9, Jan, Xiamen, China.