

# Can Zhou

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## Professional Experience

2019-	<b>Visiting Researcher</b>	Texas A&M
2016-2018	<b>Postdoc Research Associate</b> Department of Fish and Wildlife Conservation, Blacksburg, VA	Virginia Tech
2015-2016	<b>Assistant Researcher</b> Key Laboratory of Fisheries Remote Sensing & Information Technology, Chinese Academy of Fishery Sciences, Shanghai East China Sea Fisheries Research Institute, China	ECSFRI, CAFS

## Professional Service

2015-2018	Member of the Section on Marine Birds and Mammals, North Pacific Marine Science Organization
2015-2016	Member of the Chinese Offshore Purse Seine and Trawl Fisheries Task Group

## Professional Societies

American Fisheries Society	China Society of Fisheries
Chinese Society for Cell Biology	International Association of Great Lakes Research
Atlantic Marine Bird Cooperative	Community surface dynamics modeling system
World Seabird Union	

## Education

2015	<b>Ph.D.</b> in Wildlife and Fisheries Dissertation: A predator-prey system with seasonal reproduction Advisor: Dr. Masami Fujiwara	Texas A&M University, CS, TX
2010	<b>M.S.</b> in Marine Biology Thesis: Population characteristics of <i>Coreius guichenoti</i> (Sauvage <i>et</i> Dabry) in the upper reaches of Yangtze River Advisors: Dr. Qian Zhu and Dr. Huanzhang Liu	Shandong University, China
2007	<b>B.S.</b> in Biological Sciences Thesis: Biology of the siamese algae-eater <i>Abbotina rivularis</i> in Panzhihua Reach, Jinshajiang River Advisor: Dr. Qian Zhu	Shandong University, China

## Certificates and Continuing Education

Oracle Certified Professional Java Programmer	Oracle
Oracle Certified Associate Java Programmer	Oracle
SQL (Structured Query Language)	Stanford University
Relational Algebra	Stanford University
Bayesian Statistics	Duke University
Inferential Statistics	Duke University
Linear Regression and Modeling	Duke University

## Awards and Scholarships

2018	Departmental research proposal support grant, Virginia Tech
2014–2015	Texas Sea Grant Research Assistantship, Texas A&M
2014	Presentation grant, OGPS, Texas A&M
2013	Tom Slick graduate research fellowship, CALS, Texas A&M
2011–2013	Texas Sea Grant Research Assistantship, Texas A&M
2012	Travel grant, EEB Program, Texas A&M
2012	Travel grant, Dept. of Wildlife and Fisheries Sciences, Texas A&M
2008	Weichai Power outstanding graduate scholarship, Shandong University
2007–2010	State graduate research fellowship, Shandong University
2003–2007	Multiple university level scholarships, Shandong University
2002	2nd Prize of National Chemistry Olympic Competition (Henan division), China
2001	2nd Prize of National Chemistry Olympic Competition (Henan division), China

## Research Projects

2016–2018	“Estimating seabird bycatch of the US pelagic longline fleet in the Western North Atlantic and understanding influencing factors”, NOAA NMFS Southeast Fisheries Science Center
2016–2018	“Verification of natural mortality estimation of Walleye in Lake Erie based on integrated Bayesian statistical catch-at-age models”, Great Lakes Fisheries Commission
2014–2015	“Economic Valuation of Brown and White Shrimps as Forage Species in the Coastal Areas of Texas”, Texas Sea Grant
2012–2014	“Investigation of short-term fluctuation in shrimp abundance in the Gulf of Mexico”, Texas Sea Grant

## Major Research Themes

SeaBird conservation and mitigation of incidental mortality from fisheries	SB
Ecological Community Dynamics: environmental drivers and species interactions	CD
Population Dynamics: analysis and management	PD

## Papers in the Pipeline

- Zhou, C.**, Liao, B. A novel method for identifying regulatory modules in ecosystems with the Gulf of Mexico ecosystem as a case study. CD
- Piper, C., Fujiwara, M., Leo, J., **Zhou, C.**, Jiao, Y. Size- and density-dependent survival in a brown shrimp (*Farfantepenaeus aztecus*) population. PD
- Cui, X., **Zhou, C.** A non-parametric geographical weighted habitat index model for *Ommastrephes bartramii* in the Northwest Pacific based on fishery data. PD
- Zhou, C.**, Brothers, N. Seabird bycatch vulnerability in pelagic longline fisheries. SB
- Zhou, C.**, Brothers, N. Seabird interaction strength in pelagic longline fisheries: risk factors and implications for management. SB
- Zhou, C.**, Brothers, N., Liao, B., Zhao, X., Jiao, Y. Design and analysis of bycatch loss observations in longline fisheries. SB
- Zhou, C.**, Jiao, Y. A two-stage hierarchical approach to resolve natural mortality: Lessons from Lake Erie Walleye *Sander vitreus*. PD
- Bi, R., **Zhou, C.**, Jiao, Y. Bayesian hierarchical modeling of Lake Erie yellow perch movement across management units based on a tagging experiment from 2009 to 2015. PD
- Zhou, C.**, Jiao, Y. Modeling and interpretation of uncertainty in the estimated natural mortality component of statistical catch-at-age models. PD
- Zhou, C.** and Fujiwara, M. A comparison of four statistical methods in detecting species interactions using short and noisy time series data with a case study from a Gulf of Mexico marine community.

## Accepted Publications and Reports

- Ma, Q., Jiao, Y., **Zhou, C.**, Ren, Y. 2020. Sexual and spatio-temporal variation of Lake Erie Walleye growth and maturity: A consequence of multiple impacting factors. Aquaculture and Fisheries. DOI: 10.1016/j.aaf.2020.06.010 PD
- Zhou, C.**, Brothers, N., Browder, J., Jiao, Y. 2020. Seabird bycatch loss rate variability in pelagic longline fisheries. Biological Conservation 247, 108590 SB
- Zhou, C.** 2020. Evaluating new evidence in the early dynamics of the novel coronavirus COVID-19 outbreak in Wuhan, China with real time domestic traffic and potential asymptomatic transmissions. medRxiv. DOI: 10.1101/2020.02.15.20023440 PD
- Liao, B., Shan X., **Zhou, C.**, Han, Y., Chen, Y. Liu, Q. 2020. A dynamic energy budget-integral projection model (DEB-IPM) to predict population level dynamics based on individual data: a case study using the small and rapidly reproducing species *Engraulis japonicus*. Marine and Freshwater Research. DOI: 10.1071/MF19158 PD
- Zhou, C.**, Jiao, Y., Browder, J. 2019. Seabird bycatch vulnerability to pelagic longline fisheries: ecological traits matter. Aquatic Conservation: Marine and Freshwater Ecosystems 29(8): 1324-1335 SB
- Zhou, C.**, Jiao, Y., Browder, J. 2019. How much do we know about the seabird bycatch in the Atlantic pelagic longline fishery? PLoS ONE 14(8): e0220797 SB
- Zhou, C.**, Jiao, Y., Browder, J. 2019. K-aggregated distributions for modeling count data with excess ones. Ecological Modelling 407, 108726
- Bi, R., Jiao, Y., **Zhou, C.**, Hallerman, E. 2018. A Bayesian spatiotemporal approach to inform management unit appropriateness. Canadian Journal of Fisheries and Aquatic Sciences 76(2): 217-237 PD

- Zhou, C.**, Jiao, Y. 2018. Predicted seabird bycatch in the U.S. Atlantic pelagic longline fishery during 1992-2017 based on observer and logbook data. Department of Fish and Wildlife Conservation. Virginia Tech, Blacksburg, Virginia. Report to Southeast Fisheries Science Center NOAA. DOI: 10.13140/RG.2.2.10689.10083 SB
- Zhou, C.**, Jiao, Y. 2017. Predicted seabird bycatch in the U.S. Atlantic pelagic longline fishery during 1992-2016 based on observer and logbook data. Department of Fish and Wildlife Conservation. Virginia Tech, Blacksburg, Virginia. Report to Southeast Fisheries Science Center NOAA. DOI: 10.13140/RG.2.2.16141.69602 SB
- Zhou, C.**, Jiao, Y. 2016. Predicted seabird bycatch in the U.S. Atlantic pelagic longline fishery during 1992-2014 based on observer and logbook data. Department of Fish and Wildlife Conservation. Virginia Tech, Blacksburg, Virginia. Report to Southeast Fisheries Science Center NOAA. DOI: 10.13140/RG.2.2.36274.35529 SB
- Fujiwara, M., **Zhou, C.**, Acres, C. and Martinez-Andrade, F. 2016. Interaction between penaeid shrimp and fish populations in the Gulf of Mexico: Importance of shrimp as forage species. PLOS ONE 11.11: e0166479 CD
- Zhou, C.**, Fujiwara, M. and Grant, W. 2016. Finding regulation among seemingly unregulated populations: A practical framework for analyzing multivariate population time series for their interactions. Environmental and Ecological Statistics. 23(2): 181-204 CD
- Zhou, C.** 2015. A Predator-prey System with Seasonal Reproduction: Theoretical and Statistical Developments. Doctoral dissertation, Texas A&M University. Available electronically from <http://hdl.handle.net/1969.1/155368>. CD
- Zhou, C.**, Fujiwara, M. and Grant, W. 2013. Dynamics of a predator-prey interaction with seasonal reproduction and continuous predation. Ecological Modelling 268: 25-36 CD
- Fujiwara, M. and **Zhou, C.** 2013. Population dynamics of stage structured sequential hermaphrodites. Canadian Journal of Fisheries and Aquatic Sciences 70 (999): 1-10 PD
- Zhou, C.** 2010. Growth and population dynamics of largemouth bronze gudgeon (*Coreius guichenoti*) in the upper reach of Yangtze River. Master's thesis. Shandong University. PD
- Zhou, C.**, Zhu, Q. and Liu, H. 2010. Analysis of the growth function of the largemouth bronze gudgeon *Coreius guichenoti* in the upper reaches of the Yangtze River. Sichuan Journal of Zoology 29 (4): 510-516
- Yang, S., Ma, B., Kong, Y., **Zhou, C.** and Liu, H. 2010. Growth features of juvenile *Coreius guichenoti* and its conservation in the three gorges reservoir. Resources and Environment in the Yangtze Basin S2: 52-57
- Zhou, C.**, Zhu, Q., Cheng, P., Xiong Y., and Tan, D. 2008. Biology of the siamese algae-eater *Abbotina rivularis* in Panzhuhua Reach, Jinshajiang River. Acta Zoologica Sinica 54 (2): 218-224

## Scientific Software Produced

**kodonz** version 1.1.69, a comprehensive DNA codon analysis toolkit (R package).

Hosted at <https://hvoltbb.github.io/kodonz/>

**konez** version 1.1.70, an R package for K-aggregated count data regression with covariates and random effects.

Hosted at <https://hvoltbb.github.io/konez/>

**lostSB** version 0.1, an R package of bycatch loss analysis tools for **SeaBirds** interacting with longline fisheries.

Currently taken offline, pending the acceptance of the associated research paper.

Will be hosted at <https://hvoltbb.github.io/lostSB/>

## Conference Presentations and Invited Talks

- 2020 Out of sight, out of notebook: Seabird bycatch loss in pelagic longline fisheries  
**OneNOAA Science Seminars (invited talk)**
- 2020 Seabird bycatch loss in pelagic longline fisheries  
**World Seabird Union 10th Seabird Session (invited guest speaker)**
- 2017 Improving seabird bycatch rate estimate in the U.S. Atlantic pelagic longline fishery  
147th **American Fisheries Society** annual conference
- 2017 Bayesian hierarchical modeling of walleye tagging data  
147th **American Fisheries Society** annual conference
- 2017 Estimating Lake Erie Walleye Natural Mortality Based on an Integrated Model  
147th **American Fisheries Society** annual conference
- 2017 A length-based age-structured Bayesian hierarchical model of tag-recovery data,  
with a case study of Lake Erie yellow perch *Perca flavescens*  
**Virginia Chapter American Fisheries Society** annual conference
- 2017 Bayesian modelling and interpretation of estimated natural mortality  
60th **International Association of Great Lakes Research** annual conference
- 2016 Verification of natural mortality estimation of walleye (*Sander vitreus*) in Lake Erie  
based on integrated Bayesian statistical catch-at-age models  
**Great Lakes Fishery Commission LPMAG Meeting**
- 2015 A Predator-prey System with Seasonal Reproduction  
ECSFRI, CAFS, Shanghai, China (**invited talk**)
- 2015 Testing bottom-up and top-Down processes in communities:  
A cointegration approach.  
144th **American Fisheries Society** annual conference
- 2015 A comparison of statistical methods for testing species interactions  
from short and noisy time series data.  
100th **Ecological Society of America** annual conference
- 2015 Testing Bottom-up and Top-Down Processes in Ecological Communities.  
**Chinese Society of Fisheries** annual conference (**session host and judge**)
- 2014 Testing top-down and bottom-up processes in ecological communities.  
**Ecological Integration Symposium**, Texas A&M
- 2014 Testing top-down and bottom-up processes in ecological communities.  
144th **American Fisheries Society** annual conference
- 2013 The effect of complex and discrete life history on predator-prey dynamics.  
142nd **American Fisheries Society** annual meeting
- 2013 The effect of complex and discrete life history on predator-prey dynamics.

- Ecological Integration Symposium**, Texas A&M
- 2011 Population characteristics of *Coreius guichenoti* (Sauvage *et* Dabry) in the upper reaches of the Yangtze River.  
96th **Ecological Society of America** annual conference
- 2011 Population characteristics of *Coreius guichenoti* (Sauvage *et* Dabry) in the upper reaches of the Yangtze River.  
**Ecological Integration Symposium**, Texas A&M
- 2008 Population characteristics of *Coreius guichenoti* (Sauvage *et* Dabry) in the upper reaches of the Yangtze River.  
**Chinese Ichthyological Society** annual conference

## Teaching

- 2017–2018 Provided mentoring and technical assistance at Jiao’s lab at Virginia Tech  
Committee member of Ph.D. student R. Bi;  
M.S student A. White (now Ph.D. student at FIU),  
Ph.D. student Q. Ma (now AP at SHOU).
- 2013 (Double-session) Course instructor, Fundamentals in Ecology lab, Texas A&M  
Prepared all lectures, quizzes and exams;  
Evaluated student performance and assigned grades;  
Organized multiple field trips.
- 2008 (Double-session) Course instructor, Vertebrate Zoology lab, Shandong University  
Prepared lectures with other instructors and graded exams.

## Programming and Computation Skills

R programming language	MATLAB	Microsoft Access
VBA	SQL	C
Linux scripting language	JAGS	L <sup>A</sup> T <sub>E</sub> X
Perl	Google Cloud Core	Python
ADMB	TMB	

## Referee/Reviewer

Presentations judge at the 60th IAGLR annual conference  
Ecological Modelling  
Ecological Monographs  
Journal of Applied Mathematics and Computers in Simulation  
Infectious Diseases of Poverty  
Endangered Species Research  
Conservation Biology  
PLOS ONE

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