

# CHRISTINE C. STAWITZ

ECS Federal in support of NOAA Fisheries | (206) 617-2060 | [christine.stawitz@noaa.gov](mailto:christine.stawitz@noaa.gov) | <http://cstawitz.github.io>

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## EDUCATION

**Ph.D., University of Washington** **September 2011- August 2017**

*Quantitative Ecology and Resource Management*

Dissertation: Understanding the effects of growth and size-at-age variation on the dynamics of fish populations.

Advisor: Dr. Timothy E. Essington, School of Aquatic and Fisheries Sciences

**B.Sc. (with distinction), University of Virginia** **September 2004 – May 2008**

*Systems Engineering, Minor in Computer Science*

Thesis: Monitoring and data analysis of residential energy consumption in ecoMOD, a sustainable, modular, low-cost housing design.

Advisor: Dr. P. Paxton Marshall, School of Engineering and Applied Science

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## RELEVANT WORK AND RESEARCH EXPERIENCE

Stock Assessment Modeler, ECS Federal in support of NOAA Fisheries **October 2018 – present**

- Developing new population modeling frameworks for fisheries stock assessments
- Improving usability, documentation, and UI framework for a suite of fisheries population modeling tools

Postdoctoral Research Associate, **University of Washington/NOAA Fisheries** **September 2017 – August 2018**

- Predicting impacts of climate change on snow crab, *Chionoecetes opilio*, using individual-based model
- Integrating experimental results with output of regional ocean model in a bioenergetics framework

Graduate Research Assistant, **University of Washington** **June 2012 – August 2017**

- Detected patterns in somatic growth variation of marine fish using Bayesian state-space models
- Simulation analyses to determine the impact of somatic growth variation on fish productivity
- Explored feasibility of using size-structured models in data-limited systems

Program Manager, **Microsoft Corporation** **August 2008 – August 2011**

- Managed design and development lifecycle on the Windows 8 product team including:
  - Designed user interface of Windows features, including copy engine dialog and common controls
  - Coordinated and led team of developers, testers, and designers to develop Windows features
  - Wrote internal specifications and external-facing API documentation for common controls

Database and Development Intern, **Donor Town Square, Inc.** **June 2006 – January 2007**

- Designed, developed, and maintained SQL database structures and ASP.NET website

Database Team Intern, **Capital IQ, Inc., Division of Standard & Poor's** **May 2005 – August 2005**

- Worked with database team to design and develop SQL database structures and internal web tools using Visual Basic and HTML

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## AWARDS

R unconference 2018 invitation **May 2018**

PICES/ICES ECS Travel Award **May 2017**

NSF IGERT Program on Ocean Change Ph.D. Traineeship **June 2014**

NMFS/Sea Grant Population Dynamics Graduate Fellowship **June 2014**

PICES Marine Science Organization Student Travel Award **October 2013**

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## PUBLICATIONS

**Stawitz, C.C.**, Haltuch, M.A., and Johnson, K.F. How does growth misspecification impact management advice from an integrated stock assessment model? *Fisheries Research*. *In press*.

**Stawitz, C.C.** and Essington, T.E. Somatic growth contributes to population variation in marine fishes. *Journal of Animal Ecology*. *In press*.

Hayes, A.L., Heery, E.C., Maroon, E., McClaskey, A.K. and **Stawitz, C.C.** 2018. The role of scientific expertise in local adaptation to projected sea level rise. *Environmental Science and Policy*. 87:55-63.

Moriarty, P.E., Hodgson, E.E., Froehlich, H.E., Hennessey, S.M., Marshall, K.N., Oken, K.L., Siple, M.C., Koehn, L.E., Pierce, B.D., and **Stawitz, C.C.** 2018. The need for validation of ecological indices. *Ecological Indicators*. 84:546-552.

**Stawitz, C.C.**, Siple, M.C., Lee, Q., Munsch, S.H. 2017. Financial and ecological implications of global seafood mislabeling. *Conservation Letters*. 10(6): 681-689.

**Stawitz, C.C.**, Hurtado-Ferro, F., Kuriyama, P.T., Trochta, J.T., Johnson, K.F., Haltuch, M.A., Hamel, O.S. Stock Assessment Update: Status of the U.S. petrale sole resource in 2014. 2015. Pacific Fishery Management Council, Portland, OR.

Monnahan, C.C., Ono, K., Anderson, S.C., Rudd, M.B., Hicks, A.C., Hurtado-Ferro, F., Johnson, K.F., Kuriyama, P.T., Licandeo, R.R., **Stawitz, C.C.**, Taylor, I.G., Valero, J.L. 2016. The effect of length bin structures on growth estimation in integrated age-structured stock assessments. *Fisheries Research*. 180: 103-112.

Kuriyama, P.T., Ono, K., Hurtado-Ferro, F., Hicks, A.C., Taylor, I.G., Licandeo, R.R., Johnson, K.F., Anderson, S.C., Monnahan, C.C., Rudd, M.B., **Stawitz, C.C.**, Valero, J.L. 2016. An empirical weight-at-age approach reduces estimation bias compared to modeling parametric growth in integrated, statistical stock assessment models when growth is time varying. *Fisheries Research*. 180: 119-127.

**Stawitz, C.C.**, Essington, T.E., Branch, T.A., Haltuch, M.A., Hollowed, A.B., Spencer, P.D. 2015. A state-space approach for measuring growth variation and application to North Pacific groundfish. *Canadian Journal of Fisheries and Aquatic Sciences*. 72(9): 1316-1328.

Essington, T.E., Moriarty, P.E., Froehlich, H.E., Hodgson, E.E., Koehn, L.E., Oken, K.L., Siple, M.C., **Stawitz, C.C.** 2015. Fishing amplifies forage fish population collapses. *Proceedings of the National Academy of Sciences*. 112 (21): 6648-6652.

## SELECT PRESENTATIONS

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**Stawitz, C.C.**, Stockhausen, W.T., Szuwalski, C.S., Foy, R.J, Punt, A.E. "Forecasting the effects of climate change on Alaskan snow crab (*Chionoecetes opilio*)." 4<sup>th</sup> Effects of Climate Change on the World's Ocean's Symposium, Washington, D.C. USA. June 2<sup>nd</sup> 2018.

**Stawitz, C.C.**, Haltuch, M.A. "How does growth variability affect estimation of management quantities in fisheries stock assessments, and can growth changes be detected?" ICES/PICES Early Career Scientist Meeting, Busan, ROK. May 31<sup>st</sup>, 2017.

**Stawitz, C.C.**, Essington, T.E. "The relative importance **Stawitz, C.C.**, Haltuch, M.A. "How does growth variability affect estimation of management quantities in fisheries stock assessments, and can growth changes be detected?" ICES/PICES Early Career Scientist Meeting, Busan, ROK. May 31<sup>st</sup>, 2017.  
of somatic growth and recruitment to population production." NMFS-Sea Grant Population Dynamics Fellows Meeting, Santa Cruz, CA. June 28<sup>th</sup>, 2016

**Stawitz, C.C.,** Hurtado-Ferro, F., Kuriyama, P.T., Trochta, J.T., Johnson, K.F., Haltuch, M.A., Hamel, O.S. "Stock assessment update: status of the U.S. petrale sole resource in 2014." Pacific Fishery Management Council Science and Statistical Committee Meeting. Spokane, WA. June 10<sup>th</sup>, 2015.

**Stawitz, C.C.,** Essington, T.E., Branch, T.A., Haltuch, M.A., Hollowed, A.B., Mantua, N. Spencer, P. "A state-space approach for measuring growth variation and application to North Pacific groundfish." Ecological Society of America Annual Meeting. Sacramento, CA. August 13<sup>th</sup>, 2014.

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## TEACHING AND TUTORING EXPERIENCE

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**Invited Speaker, Introduction to drake workflows, R-Ladies Seattle** **June 2018**

- Prepared and led workshop on using the R package drake for optimized project development workflows

**Invited participant, R unconference 2018, Microsoft Reactor, Seattle** **May 2018**

- Developed roomba R package to tidy deeply-nested lists; created Shiny app and documentation

**Lecturer, GitHub Tutorial, University of Washington** **June 2016, January 2017**

- Prepared and led interactive tutorial on GitHub use to students and postdoctoral researchers

**Guest Lecturer, Advanced Marine Biology, University of Washington** **October 2014**

- Prepared and led fish life history lecture: "Growth and Body Size in Fishes" lecture and discussion

**Guest Lecturer, Super-Advanced R, University of Washington** **Spring 2014**

- Prepared and led "Underpinnings of R" lecture and lab, covering core computer science topics such as scoping, typing, rounding error, and regular expressions in the R programming language.

**Guest Lecturer, Analysis of Ecological Data, University of Washington** **April 2016, Spring 2013**

- Lectures on statistics including: mixed effect models, analysis of covariance, nonlinear regression

**Computing Assistant, Analysis of Ecological Data, University of Washington** **Spring 2013**

- Prepared and led R labs on generalized linear models, mixed effect models, analysis of variance & covariance, nonlinear regression

**Drop-In Tutor, Statistics Tutor and Study Center, UW, Seattle, WA** **January – June 2014**

- Tutored undergraduate students on statistics and probability coursework

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## TECHNICAL SKILLS

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**Software development:** Co-author of the roomba, ss3sim, and r4ss R packages

**Programming language proficiency:** R, Java, Stock Synthesis 3, SQL, HTML, ADMB, Visual Basic, C++, JavaScript

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## OUTREACH & SERVICE

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**FINS Diversity and Equity Forum Leader** **September 2015 – January 2017**

- Lead workshops and develop training materials to promote diversity and equity in the UW community

**Washington Trails Association Volunteer** **August 2009 – present**

- Built and maintained hiking trails in Washington state

**Ocean Inquiry Project Volunteer, Seattle, WA** **August 2014 – August 2016**

- Teaching high school students about marine science and oceanography via cruises and scientific dives

**NOAA Fisheries Groundfish Trawl Survey Volunteer, Newport, OR** **May 2015 – June 2015**

- Participated in sea safety and biology training; sampled groundfish on 11-day cruise

**UW Graduate and Professional Student Senator, Seattle, WA** **September 2012 - September 2014**

- Represented QERM student interests and concerns to the graduate student government

**Orca Bowl: Science Judge, Seattle, WA** **February 2013**

- Served as science judge in event for high school students to learn and compete in marine science trivia

**Seattle Aquarium Volunteer, Seattle, WA** **January 2011 - December 2013**

- Teaching marine biology and ecology to aquarium visitors; animal husbandry