

## Colleen M. Petrik

---

CONTACT INFORMATION	Southwest Fisheries Science Center National Marine Fisheries Service, NOAA 110 Shaffer Rd. Santa Cruz, CA 95060 USA	Mobile: +1-508-274-8620 E-mail: cpetrik@ucsc.edu
RESEARCH INTERESTS	Biological oceanography of zooplankton and fishes. Coupled biological-physical modeling of behavior and population dynamics as influenced by environmental forcing.	
EDUCATION	<b>Massachusetts Institute of Technology – Woods Hole Oceanographic Institution,</b> Woods Hole, MA USA Feb 2011  Ph.D., MIT-WHOI Joint Program in Biological Oceanography Thesis: Modeling the processes affecting larval haddock ( <i>Melanogrammus aeglefinus</i> ) survival on Georges Bank Advisor: Cabell S. Davis  <b>University of Miami,</b> Coral Gables, FL USA May 2005  B.S., Marine Science and Biology <i>Summa Cum Laude</i> , with Honors in Marine Science Thesis: A stage-structured model of lobster populations Advisors: Dr. Donald Olson (Physical Oceanography) and Dr. Daniel Diresta (Biology) Minors in Math and Chemistry	
ACADEMIC APPOINTMENTS	<b>Assistant Project Scientist</b> Oct 2013 – present Institute of Marine Sciences, University of California Santa Cruz  <b>Postdoctoral Researcher</b> Oct 2012 – Oct 2013 School of Fisheries and Ocean Sciences, University of Alaska Fairbanks Supervisors: Dr. Franz Mueter and Dr. Janet Duffy-Anderson  <b>Postdoctoral Research Associate</b> Jan 2011 – Sep 2012 Department of Oceanography, Texas A&M University Supervisor: Dr. George Jackson	
REFEREED JOURNAL PUBLICATIONS	Duffy-Anderson, J., Barbeaux, S., Farley, E., Heintz, R., Horne, J., Parker-Stetter, S., <b>Petrik, C.M.</b> , Siddon, E.C., Smart, T.I. ( <i>in revision</i> ) A review and ecological synthesis of the first year of life of walleye pollock ( <i>Gadus chalcogrammus</i> ) in the eastern Bering Sea and comments on implications for recruitment. Deep-Sea Research II: Topical Studies in Oceanography  <b>Petrik, C.M.</b> , Ji, R., Davis, C.S. ( <i>accepted</i> ) Interannual differences in larval haddock survival: hypothesis testing with a 3D biophysical model of Georges Bank. Fisheries Oceanography doi:10.1111/fog.12087  <b>Petrik, C.M.</b> , Duffy-Anderson, J.T., Mueter, F., Hedstrom, K., Curchitser, E.N. 2014. Biophysical transport model suggests climate variability determines distribution of Walleye Pollock early life stages in the eastern Bering Sea through effects on spawning. Progress in Oceanography doi:10.1016/j.pocean.2014.06.004  <b>Petrik, C.M.</b> , Jackson, G.A., Checkley, D.M. 2013. Aggregates and their distributions determined from LOPC observations made using an autonomous profiling float. Deep-Sea Research I doi:10.1016/j.dsr.2012.12.009	

- Petrik, C.M.**, Kristiansen, T., Lough, R.G., Davis, C.S. 2009. Prey selection of larval haddock and cod on copepods with species-specific behavior: an individual-based model analysis. *Marine Ecology Progress Series* 396: 123–143 doi:10.3354/meps08268
- Hu, Q., Davis, C.S., and **Petrik, C.M.** 2008. A simplified age-stage model for copepod population dynamics. *Marine Ecology Progress Series* 360: 179–187 doi:10.3354/meps07314
- Hu, Q., **Petrik, C.M.**, and Davis, C.S. 2007. Normal versus gamma: Stochastic models of copepod molting rate. *Journal of Plankton Research* 29: 985-997

CONFERENCE  
PRESENTATIONS

- Petrik, C.M.** Fall-run Chinook pre-smolt outmigration to alternate rearing areas in the Sacramento-San Joaquin Valley. Oral presentation at the Bay-Delta Science Conference in Sacramento, California Oct 2014.
- Petrik, C.M.**, Duffy-Anderson, J.T., Mueter, F., Hedstrom, K., Danielson, S., Curchitser, E. The effect of eastern Bering Sea climate variability on the distribution of Walleye Pollock early life stages during the BSIERP/BEST years. Oral presentation at the Bering Sea Open Science Meeting in Honolulu, Hawaii Feb 2014.
- Petrik, C.M.**, Duffy-Anderson, J.T., Mueter, F., Hedstrom, K., Danielson, S., Curchitser, E. How eastern Bering Sea climate variability affects the distribution of walleye pollock early life stages. Oral presentation at the PICES Annual Science Conference in Nanaimo, Canada Oct 2013.
- Petrik, C.M.**, Duffy-Anderson, J.T., Mueter, F., Hedstrom, K., Danielson, S., Curchitser, E., Barbeaux, S. Modeling climate effects on the dispersal and distribution of early life stages of walleye pollock over the eastern Bering Sea Shelf. Oral and written presentation at the ICES Annual Science Conference in Reykjavik, Iceland Sep 2013.
- Petrik, C.M.**, Jackson, G., Checkley, D., Dagg, M. Assessing aggregate distributions and fluxes using the SOLOPC. Poster presentation at the Ocean Sciences meeting in Salt Lake City, Utah Feb 2012.
- Petrik, C.M.**, Davis, C.S., Ji, R. Coupling models of hydrodynamics, prey, and larval haddock on Georges Bank. Oral and written presentation at the ICES Annual Science Conference in Nantes, France Sep 2010.
- Petrik, C.M.**, Ji, R., Davis, C.S. Optimal vertical behavior of larval haddock: trading the risk of starvation and predation mortality. Oral presentation at the ICES Workshop on understanding and quantifying mortality in pelagic, early life stages of marine organisms: experiments, observations and models in Aberdeen, Scotland Mar 2010.
- Petrik, C.M.**, Kristiansen, T., Lough, R.G, Davis, C.S. Modeling prey selection of larval haddock on copepods with species-specific behavior. Poster presentation at the Ocean Sciences meeting in Portland, Oregon Feb 2010.
- Petrik, C.M.**, A. Solow. A test for extra-environmental patchiness in plankton. Poster presentation at the Ocean Sciences Meeting in Portland, Oregon 2010.
- Petrik, C.M.**, Davis, C.S., Ji, R., Lough, R.G., Kristiansen, T. Modelling the sources of mortality for larval haddock on Georges Bank and their effects on behavior. Oral and written presentation at the ICES Annual Science Conference in Berlin, Germany Sep 2009.
- Petrik, C.M.**, Kristiansen, T., Lough, R.G, Davis, C.S. Prey selection of larval haddock and cod on copepods with species-specific behavior. Oral presentation at the ICES Working Group on Physical Biological Interactions meeting in Sète, France Apr 2008.

REFeree SERVICE	Canadian Journal of Fisheries and Aquatic Sciences Fisheries Oceanography ICES Journal of Marine Science Marine Ecology Progress Series Pollock Conservation Cooperative Research Center Progress in Oceanography	
AWARDS	Physical Oceanography Committee Best Presentation PICES Annual Science Conference, Nanaimo, Canada	2013
	Woods Hole Oceanographic Institution Coastal Ocean Institute Student Research Proposal Award, “Modeling studies focused on larval fish” Watson Fellowship	2008 2005–2011
	University of Miami Phi Beta Kappa Honor Society Joseph G. Hirschberg Physics Prize Golden Key Honor Society National Society of Collegiate Scholars University Scholarship	2003 2003 2002 2002 2001–2005
PROFESSIONAL ACTIVITIES	Bay-Delta Science Conference Sacramento, California	Oct 2014
	Interagency Ecological Program Annual Workshop Folsom, California	Mar 2014
	Bering Sea Open Science Meeting Honolulu, Hawaii	Feb 2014
	PICES Annual Science Conference Nanaimo, Canada	Oct 2013
	ICES Annual Science Conferences Reykjavik, Iceland Nantes, France Berlin, Germany	Sep 2013 Sep 2010 Sep 2009
	Alaska Marine Science Symposium Anchorage, AK	Jan 2013
	Ocean Sciences Meeting Salt Lake City, Utah Portland, Oregon	Feb 2012 Feb 2010
	ICES Working Group on Integrative, Physical-Biological, and Ecosystem Modelling	2011–present
	ICES Working Group on Physical Biological Interactions Official Member Unofficial Member Meetings San Sebastian, Spain Aberdeen, Scotland	2011 2008–2011  Mar 2011 Mar 2010

Sète, France Apr 2008

American Society of Limnology and Oceanography, Member 2011–present

American Geophysical Union, Member 2010–present

Physical Micro-Environments Modulating Biological Interactions in the Ocean Meeting  
Aspen, Colorado Jan 2011

ICES Workshop on understanding and quantifying mortality in pelagic, early life stages  
of marine organisms: experiments, observations and models  
Aberdeen, Scotland Mar 2010

ICES Workshop on Advancements in Modelling Physical-Biological Interactions in Fish  
Early-life History Collaborators Meeting  
Sète, France Apr 2008

U.S. GLOBEC Georges Bank Phase 4B Scientific Investigators Meetings  
Woods Hole, MA Apr & Oct 2007

Gordon Conference on Coastal Ocean Modeling  
New London, NH Jun 2007

Larval Biology course at the University of Washington Friday Harbor Laboratory  
Friday Harbor, WA Aug 2006

TEACHING  
EXPERIENCE

Guest Lecturer

University of Washington, Seattle, WA USA  
Fisheries Oceanography (FISH 437/537 undergrad/grad) Spring 2013  
Responsible for 1 50-min lecture:  
Forecasting recruitment of walleye pollock in the Gulf of Alaska

Texas A&M University, College Station, TX USA  
Interdisciplinary Oceanography (OCNG 401 undergrad) Fall 2011, 2012  
Responsible for 5 1.5-hr lectures:  
Drag, Reynolds numbers, and Ocean Physiography  
Plate Tectonics  
Properties of Water and Seawater  
Gulf of Mexico and the Mississippi River  
Marine Resources  
Oceanography (OCNG 251 undergrad) Spring 2012  
Responsible for 1 1.5-hr lectures:  
Primary Productivity

Courses on Teaching

Massachusetts Institution of Technology, Cambridge, MA USA 2009–2010  
Graduate Student Teaching Certification

Woods Hole Oceanographic Institution, Woods Hole, MA USA Spring 2009  
Communicating Ocean Sciences

Teaching Outreach

Mullen Hall Elementary School, Falmouth, MA USA Spring 2009  
5 1-hr lessons with 4th graders on fish adaptations

TEACHING INTERESTS Biological Oceanography, Biological-Physical Interactions and Models, Mathematical Ecology, Numerical Models of the Oceans

RESEARCH CRUISES R/V Oceanus: Collection of physical and biological data by two towed instruments around the U.S. Virgin Islands, D. Fratantoni, Chief Scientist 2008

R/V Knorr: Video Plankton Recorder survey of *Trichodesmium* in the Caribbean, C. Davis, Chief Scientist 2006

SKILLS Computer Programming: FORTRAN, L<sup>A</sup>T<sub>E</sub>X, LINUX, MATLAB, R  
Diving: SCUBA open water certified  
Laboratory: Zooplankton sample analysis  
Instrumentation: Bongo net, CTD rosette, SOLOPC, Video Plankton Recorder

REFERENCES

**Dr. Cabell S. Davis**  
Senior Scientist  
Biology Department  
Woods Hole Oceanographic Institution  
MS 33  
Woods Hole, MA 02543  
cdavis@whoi.edu  
+1-508-289-2333

**Dr. Janet Duffy-Anderson**  
Research Fishery Biologist  
NOAA Alaska Fisheries Science Center  
National Marine Fisheries Service  
7600 Sand Point Way NE  
Seattle, WA 98115  
janet.duffy-anderson@noaa.gov  
+1-206-526-6465

**Dr. Rubao Ji**  
Associate Scientist  
Biology Department  
Woods Hole Oceanographic Institution  
MS 33  
Woods Hole, MA 02543  
rji@whoi.edu  
+1-508-289-2986

**Dr. R. Gregory Lough**  
Supervisory Research Oceanographer  
NOAA Northeast Fisheries Science Center  
National Marine Fisheries Service  
144 Water St.  
Woods Hole, MA 02543  
gregory.lough@noaa.gov  
+1-508-495-2290

**Dr. Franz Mueter**  
Associate Professor  
School of Fisheries and Ocean Sciences  
University of Alaska Fairbanks  
315 Lena Point  
17101 Point Lena Loop Rd  
Juneau, AK 99801  
fmueter@alaska.edu  
+1-907-796-5448

**Dr. Donald Olson**  
Professor  
Meteorology and Physical Oceanography Department  
University of Miami  
4600 Rickenbacker Causeway  
Miami, FL 33149  
dolson@rsmas.miami.edu  
+1-305-421-4074

**Dr. Andrew Solow**  
Senior Scientist  
Marine Policy Center  
Woods Hole Oceanographic Institution  
MS 41  
Woods Hole, MA 02543  
asolow@whoi.edu  
+1-508-289-2746