

## JAMES MAXWELL PRINGLE

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### **EDUCATION**

1998-2000	Postdoctoral fellow, Physical and Biological Oceanography Scripps Institute of Oceanography
1998	Ph. D. in Physical Oceanography MIT/WHOI
1990	B.S. in Physics with High Honors Dartmouth College

### **PROFESSIONAL EXPERIENCE**

2001-present	Professor (to Associate in 2007, to Professor in 2014) Ocean Process Analysis Laboratory in EOS <i>and</i> Department of Earth Sciences, University of New Hampshire
1990-1992	Scientific Programmer on ocean GCM projects Naval Research Laboratory, Code 7330 Worked with John Kindle, Harley Hurlburt, and J. Dana Thompson

### **Publications**

*In review: (bold indicates student or postdoc)*

Alvarez-Noriega, M., S.C. Burgess, J. E. Byers, J.M. Pringle, J.P. Wares, D. J. Marshall, A global synthesis of marine connectivity, submitted, Proceeding of the National Academy of Sciences.

**Storch, L.M.** and J.M. Pringle, Perturbations grow downstream: The sometimes-chaotic response to disturbance of an asymmetrically dispersed population, resubmitted, ICES Journal of Marine Science.

*Published: (bold indicates student or postdoc)*

Pringle, J. M. (2018). Remote forcing of shelf flows by density gradients and the origin of the annual-mean flow on the Mid-Atlantic Bight. *Journal of Geophysical Research: Oceans*.  
<https://doi.org/10.1029/2017JC013721>

Storch, L. S., & Pringle, J. M. (2018). A downstream drift into chaos: Asymmetric dispersal in a classic density dependent population model. *Theoretical Population Biology*.  
<https://doi.org/10.1016/j.tpb.2018.04.003>

- Pringle J.M., J.E. Byers, M. Fernández, **P. Pappalardo**, J.P. Wares. Ocean currents cluster coastal marine range boundaries: implications for coexistence, climate induced range shifts and the relative competitiveness of benthic marine organisms. DOI:10.3354/meps12065, 2017, Marine Ecology Progress Review.
- Storch, L.M.**, J.M. Pringle. From chaos to periodicity: Revisiting the logistic map with an ecologically realistic spatial structure and dispersal mechanism. DOI: [10.1016/j.tpb.2016.11.004](https://doi.org/10.1016/j.tpb.2016.11.004) 2016, Journal of Theoretical Biology.
- Ewers-Saucedo C., J.M. Pringle, J.E. Byers, A.H. Sepúlveda, J.P. Wares, The oceanic concordance of phylogeography and biogeography: A case study in *Notochthamalus*, 2016, Ecology and Evolution, 2016.
- Byers, J.E., R. Smith, M. Bishop, J.M. Pringle, E. Johnson, G. Ruiz, G. Inglis, C. Hewitt. Invasion Expansion: Time since introduction best predicts global range of marine invaders. DOI:10.1038/srep12436, Scientific Reports vol. 5/12436, 2015.
- Pappalardo P.**, J.M. Pringle, J.E. Byers, J.P. Wares. The location, strength, and mechanisms behind marine biogeographic boundaries of the east coast of North America. DOI: 10.1111/ecog.01135, Ecology, vol. 38(7), 2015.
- Pringle, J. M., J. E. Byers, **P. Pappalardo**, J. P. Wares, and D. J. Marshall, Circulation constrains the evolution of larval development modes and life histories in the coastal ocean, *Ecology*, DOI:10.1890/13-0970.1, 2014.
- Altman S.**, J. Robinson, J.M. Pringle, J.E. Byers, J.P. Wares. Edges and overlaps in North Atlantic phylogeography. doi:10.3390/d5020263, Diversity, 2013.
- Christensen M.K.**, J.M. Pringle. The frequency and cause of shallow winter mixed layers in the Gulf of Maine. Journal of Geophysical Research: Oceans 117(C1), 2011.
- Pringle J.M., **A. Blakeslee**, J. Byers, J. Roman. Asymmetric dispersal allows an upstream region to control population structure throughout a species' range. 108(37):15288-15293, Proceedings of the National Academy of Sciences, 2011.
- Rao S.A.**, J.M. Pringle, J.A. Austin. Upwelling relaxation and river plumes downwave of estuaries. 116, doi:10.1029/2010JC006739, Journal of Geophysical Research/Oceans, 2011.
- Blakeslee A.**, C. McKenzie, J. Darling, J. Byers, J. Pringle, J. Roman. A hitchhiker's guide to the Maritimes: anthropogenic transport facilitates long-distance dispersal of an invasive marine crab to Newfoundland, 16(6): 879-891, Diversity and Distributions, 2010.
- Gilbert C.S., W.C. Gentleman, C.L. Johnson, C. DiBacco, J.M. Pringle and C. Chen. Modeling dispersal of sea scallop (*Placopecten magellanicus*) larvae on Georges Bank: influence of depth-distribution, planktonic duration and spawning seasonality, 87(1-4): 37-48, Progress in Oceanography, 2010.
- Pringle, J.M. and E.P. Dever. Dynamics of wind-driven upwelling & relaxation between Monterey Bay and Pt. Arena: Local, regional and gyre scale controls, Journal of Geophysical Research/Oceans. 2009.
- Pringle J.M, F. Lutscher and **E. Glick**, "Going against the flow: The effects of non-Gaussian dispersal kernels and reproduction over multiple generations." 2009, Marine Ecology Progress Series.
- Byers, J.E, and J.M. Pringle, 2008. Going Against the flow: How marine invasions spread and persist in the face of advection. ICES Journal of Marine Sciences, vol. 65 p.723-724.
- Wares, J.P. and J.M. Pringle, 2008. Drift by Drift: Effective Population Size limited by Advection. BMC Evolution, vol. 8:235 doi:10.1186/1471-2148-8-235.

- Pringle, J.M., 2007. Turbulence avoidance and the wind-driven transport of plankton in the surface Ekman layer. *Continental Shelf Research*, v.27(5), p.670-675.
- Huret, M.**, J.A. Runge, C. Chen, G. Cowles, Q. Xu, J.M. Pringle. 2007. Dispersal modeling of fish early life stages: Sensitivity analysis with application to Atlantic cod in the western Gulf of Maine. *Marine Ecology Progress Series*, v.347, p.261-274.
- Pringle, J.M. and J.P. Wares., 2007. Going against the flow: Maintenance of alongshore variation in allele frequency in a coastal ocean. *Marine Ecology Progress Series*, v.335, p.69-84.
- Pringle, J.M., 2006. Sources of Variability in Gulf of Maine Circulation. *Deep Sea Research-II, Georges Bank special issue*, v. 53(23-24), p.2457.
- Johnson, C.L.**, J.M. Pringle, C. Chen., 2006. Transport and retention of dormant copepods in the Gulf of Maine. *Deep Sea Research-II, Georges Bank Special Issue*, v.53(23-24), p.2457.
- Byers, J.E. and J.M. Pringle. 2006. Going against the flow: Retention, range limits and invasions in advective environments. *Marine Ecology Progress Series*, vol. 313, pp. 27-41.
- Beardsley, R., R. He, J.Kelley, C. Chen, J. Pringle, K. Drinkwater and D. Haidvogel. 2005. Coupling basin scale to Gulf of Maine models. In J. Runge and E. Braasch (eds.). *Modeling needs related to the regional observing system in the Gulf of Maine*. RARGOM Report 05-1: 28.
- Pringle, J.M. and K. Riser. 2003. Remotely Forced Nearshore Upwelling in Southern California. *J. Geophys. Res.*, vol 108(C4), doi. 10.1029/2002JC001447.
- Pringle, J.M. 2003. Response to: Dave Chapman's ``Comment on ``Cross-shelf eddy heat transport in a wind-free coastal ocean undergoing winter time cooling.''' *J. Geophys. Res.*, vol. 108(C2), doi 10.1029/2001JC001100.
- Pringle, J.M. 2002. Enhancement of Wind-Driven Coastal Upwelling and Downwelling by Alongshore Bathymetric Variability. *J. Phys. Oceanog.*, vol. 32(11), p.3101.
- Pringle, J.M. and P.J.S. Franks. 2001. Asymmetric mixing - A Novel Mechanism for the Cross-Isobath Transport of Sinking Plankton and Sediments. *Limnol. Oceanog.* vol. 42(2). p.381.
- Pringle, J.M. 2001. Cross-shelf eddy heat transport in a wind-free coastal ocean undergoing winter time cooling. *J. Geophys. Res.* vol. 106(C2), p.2589.
- Pringle J.M. 1999. Observations of High Frequency Internal Waves in the Coastal Ocean Dynamics Region. *J. Geophys. Res.*, vol. 104(C3), pp. 5263-5281.
- Pringle J.M. and K.H. Brink. 1999. High Frequency Internal Waves on a Sloping Shelf. *J. Geophys. Res.*, vol. 104(C3), pp. 5283-5299.
- Metzger, E.J., H.E Hurlburt, J.C. Kindle, Z. Sirkes, and J.M. Pringle. 1992. Hindcasting of wind-driven anomalies using a reduced- gravity ocean model. *Mar. Technol. Soc. J.*, vol. 26, no. 2, pp. 23-32.

## **EXTERNAL FUNDING**

Basin scale forcing of flows on western-boundary shelves. \$369,663 to J.Pringle as sole PI, 06/2015 to 05/2019. Source: National Science Foundation, Physical Oceanography

Collaborative Research: A mechanistic understanding of biogeographic patterns and life histories in benthic organisms in advective coastal environments. \$232,108 to J. Pringle, \$496,000 to UNH and UGA. 06/2010 to 05/2015. Source: National Science Foundation, Biological Oceanography.

Collaborative Research: Evaluating Marine Clines to Predict Larval Retention. \$72,981 to J. Pringle, \$458,000 to UNH and UGA. 09/2010 to 08/2015. Source: National Science Foundation, Biological Oceanography.

Invasive Species Trouble Spots: Tracking the Spread of European Green Crabs in the Gulf of Maine from Upstream Retention Zones. \$21,397 to J. Pringle and J. Byers 07/2007 to 06/2008. Source: Sloan Foundation.

Collaborative Research: The Interaction of Estuarine Circulation with Wind-Driven Shelf Circulation. \$190,591 to Pringle, \$457,000 to UNH and ODU. 07/01/05-06/30/09. Source: National Science Foundation, Physical Oceanography.

Co-OP/WEST Wind Driven Circulation Near Pt. Reyes.  
Includes purchase of 12 processor Linux cluster. Essentially a two-year project, but funding compressed into one year.  
Subcontract from SIO \$56,625 to Pringle. 05/01/05-06/30/06.  
Source: National Science Foundation/CoOP.

GLOBEC-01: Zooplankton Population Dynamics on Georges Bank: Model and Data Synthesis. \$337,391 to Pringle, 657,000 to UNH and SIO. 5/2002-4/2006. Source: National Science Foundation, Biological Oceanography.

Proposal to Augment the UNH Center of Excellence in Coastal Ocean Observation and Analysis (COOA) \$221,888 to Pringle (funding for: 2 month summer salary, two years of student support, and two years of a postdoc). 8/2003 to 8/2007 as a series of one-year awards. Total award to UNH about \$1,500,000. Source: National Oceanographic and Atmospheric Administration.

Globec III: Studies of Plankton and Larval Fish  
\$9,419 to Pringle, 1/2001-12/2001.  
Source: National Oceanographic and Atmospheric Administration/GLOBEC.

### ***MEETING SESSIONS CHAIR OR CONVENED***

2006 Ocean Sciences Meeting: Convening "OS045: Biological, Biogeochemical, and Physical Dynamics and Their Interactions in the Coastal Ocean" with Kipp Shearman, Niki Gruber, Jess Adkins and Heidi Sosik.

2005 US Globec Georges Bank Target Species Meeting, Durham, NH.

2004 Fall AGU session: Chaired "Shelf Processes" oral session and several poster sessions.

2003 Mid-Atlantic Bight Physical Oceanography Conference: Session chair for "Wind-driven dynamics and modeling" session.

### ***INVITED COMMITTEES AND REVIEW PANELS***

Spring 2019: NSF Biological Oceanography Proposal review panel.

Fall 2013: NSF Physical Oceanography proposal review panel.

Summer 2006: Coastal Response Research Committee proposal review panel.

Summer 2005: NSF Physical Oceanography proposal review panel.

Summer 2004: NSF Science and Technology Center proposal review panel.

Summer 2004: Georges Bank GLOBEC meeting, Newport Rhode Island.

Fall 2003: Maine Sea Grant proposal evaluation panel, Cambridge, Ma.

Fall 2003: Northeast Observing System Regional Meeting, Durham, NH.

Summer 2003: Georges Bank GLOBEC GBSyns synthesis project P.I.'s meeting. I organized the meeting. Durham, NH.

Fall 2002: NSF planning panel for a program of study of the Interconnectedness of Marine Populations, Durango CO. Report in EOS Transactions, 2003.

Spring 2002: Coastal Ocean Processes and Observatories: Advancing Coastal Research, Savannah GA. Report at <http://www.skiio.peachnet.edu/research/coop/publica.php>

Spring 2001: Gulf of Maine Ocean Observing System planning meeting, Woods Hole Massachusetts.

## ***MANUSCRIPT AND PROPOSAL REVIEWS***

Review for: Journal of Geophysical Research, Ocean Modeling, Continental Shelf Research, Journal of Physical Oceanography, Limnology and Oceanography, Deep Sea Research, Journal of Plankton Research, Geophysical Research Letters, Marine Ecology Progress Series, Journal of Coastal Research, Ecology Modeling, Ocean Modeling, Oceanography, Ecology Letters, Ecology, American Naturalist, Science, Global Change Biology, Proceedings of National Academy of Sciences and similar publications. 67 papers and proposals reviewed in last 5 years, not counting those reviewed as parts of panels or reviews of revisions.

Proposals: National Science Foundation, NOAA, ECOHAB, Maine Sea Grant. NH Sea Grant, US Civilian Research & Development Foundation and the like.

## ***LECTURE CLASSES***

### Introduction to Oceanography

A freshman level general education course covering all aspects of oceanography. Includes a lab.

### Introduction to Climate

A sophomore/junior level course for Earth Science, Natural Resources, and Oceanography majors. Covers the dynamics of climate change on timescales of 10Myrs, 100Kyr, and decade scale change.

### Introduction to Physical Oceanography

An introductory graduate level course on physical oceanography. Covers general circulation, coastal circulation and wave dynamics. Assumes college calculus, but no prior exposure to partial differential equations. Students are exposed to quasi-balanced results, understand in which parameter range they are valid, but do not derive them as expansions of the equations of motion in a small parameter.

### Geophysical Fluid Dynamics

Geophysical Fluid Dynamics taught at an advanced graduate level. Fluid dynamics of the atmosphere and oceans on rapidly rotating and stratified planets. Focus on large scale circulation of the ocean, circulation and coastal topography, and the links between wave motions and quasi-balanced approximations. Pre-requisite of fluid dynamics and PDE's.

### Quantitative Methods for the Earth Sciences

Statistical, computational and mathematical tools required for the Earth Sciences. Basic statistics and error analysis, programming in MATLAB, numerical methods. Pre-requisite of calculus and physics. Includes a lab.

## **COLLABORATORS**

Peter Franks, Lew Incze, Nicholas Wolff, Erika McPhee-Shaw, Jeffrey Runge, Changsheng Chen, Edward Durbin, Wendy Gentleman, Jay Austin, Arnaldo Valle-Levinson, Ann Bucklin, Jeannette Yen, Andrew Pershing, Donald Webster, Peter Winsor, Andone Lavery, John Wares, Jeb Byers, Fei Chai, Andrew Cooper, Michael Lesser, Andy Rosenberg, Larry Ward, Ray Grizzle, Ru Morrison, Erik Sotka, Allan Strand, Clive Dorman, Darko Koracin, Huijie Xue, Larry Mayer, Molly Lutcavage, Janet Campbell, Lucy Smedstad, Joe Roman, April Blakeslee, Andres Sepulveda, Sergio Navarrete.

## **STUDENTS AND POSTDOCTORAL FELLOWS**

*Graduate Students Advised:* Ginger McMullin, Jennifer Brassard, Stephen Brodovicz, Michael Bates, Shivanesh Rao, Michael Christenson (Earth Science/Oceanography), Patrick Hampson (Earth Science/Oceanography), Will Lush (Earth Science/Oceanography) Kyle Teller (Applied Math) and Laura Storch (Applied Math).

*Postdoctoral Scholars:* Catherine Johnson, Whitley Saumweber and Martin Huret.

*Summer Research Fellow:* David Houseman, Emily Glick and Annie Cervin