

Jan A. Newton

Principal Oceanographer, Affiliate Assistant Professor
Applied Physics Laboratory, University of Washington
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Professional Preparation:

Western Washington University	Biology	B.S., 1981
University of Washington	Oceanography	M.S., 1984
University of Washington	Oceanography	Ph.D., 1989
MBARI Postdoctoral Fellow	Oceanography	1989-1991

Appointments:

2004-present Principal Oceanographer, Applied Physics Lab, University of Washington

- Executive Director of the Northwest Association of Networked Ocean Observing Systems (NANOOS), the PNW Regional Association of U.S. Integrated Ocean Observing System
- Co-Director of the Washington Ocean Acidification Center at the University of Washington
- Instructor, UW Friday Harbor Laboratories (FHL) since 1991

2009-present Affiliate Assistant Professor, University of Washington, School of Marine Affairs

1998-present Affiliate Assistant Professor, University of Washington, School of Oceanography

1994-2004 Senior Oceanographer, Washington State Department of Ecology

1993-2005 Senior Research Scientist, Northeastern University, Marine Science Center

1991-1993 Research Associate, University of Washington, School of Oceanography

Publications:

- Alin, S., R. Brainard, N. Price, J. Newton, A. Cohen, W. Peterson, E. DeCarlo, E. Shadwick, S. Noakes, and N. Bednaršek. 2015. Characterizing the natural system: Toward sustained, integrated coastal ocean acidification observing networks to facilitate resource management and decision support. *Oceanography* 28(2):92–107.
- Barton, A., G. Waldbusser, R. Feely, S. Weisberg, J. Newton, B. Hales, S. Cudd, B. Eudeline, C. Langdon, I. Jefferds, T. King, A. Suhrbier, and K. McLaughlin. 2015. Impacts of coastal acidification on the Pacific Northwest shellfish industry and adaptation strategies implemented in response. *Oceanography* 28(2):146–159.
- McLaughlin, K., S. Weisberg, A. Dickson, G. Hofmann, J. Newton, D. Aseltine-Neilson, A. Barton, S. Cudd, R. Feely, I. Jefferds, E. Jewett, T. King, C. Langdon, S. McAfee, D. Pleschner-Steele, and B. Steele. 2015. Core principles of the California Current Acidification Network: Linking chemistry, physics, and ecological effects. *Oceanography* 28(2):160–169.
- Reum, J., S. Alin, C. Harvey, N. Bednaršek, W. Evans, R. Feely, B. Hales, N. Lucey, J. Mathis, P. McElhany, J. Newton, and C. Sabine. 2015. Interpretation and design of ocean acidification experiments in upwelling systems in the context of carbonate chemistry covariation with temperature and oxygen. *ICES J Mar. Science*, doi: 10.1093/icesjms/fsu231.
- Newton, J.A., R.A. Feely, E.B. Jewett, P. Williamson, and J. Mathis. 2014. Global Ocean Acidification Observing Network: Requirements and Governance Plan. [IAEA](#). 57 pp.
- Reum J.C.P., Alin S.R, Feely R.A., Newton J., Warner M., et al. 2014. Seasonal carbonate chemistry covariation with temperature, oxygen, and salinity in a fjord estuary: Implications for the design of ocean acidification experiments. *PLoS ONE* 9(2): e89619.
- Feely R.A., T. Klinger, J. Newton, and M. Chadsey. 2012. Scientific Summary of Ocean Acidification in Washington State Marine Waters. [NOAA ORR Special Report](#). 157 pp.

J. Newton Biographical Sketch (*continued*)

- Alford, M.H., J.B. Mickett, S. Zhang, P. MacCready, Z. Zhao, and J. Newton. 2012. Internal waves on the Washington continental shelf. *Oceanography* 25(2):66–79.
- Feely R.A., S.R. Alin, J.A. Newton, C.L. Sabine, M. Warner, A. Devol, C. Krembs, C. Maloy. 2010. The combined effects of ocean acidification, mixing, and respiration on pH and carbonate saturation in an urbanized estuary. *Est., Coast. Shelf Science* 88: 442-449.
- Moore, S. K., N. J. Mantua, J. A. Newton, M. Kawase, M. J. Warner, and J. P. Kellogg. 2008a. A descriptive analysis of temporal and spatial patterns of variability in Puget Sound oceanographic properties. *Est., Coast. Shelf Science* 80: 545-554.
- Moore, S. K., N. J. Mantua, J. P. Kellogg, and J. A. Newton. 2008b. Local and large-scale climate forcing of Puget Sound oceanographic properties on seasonal to interdecadal timescales. *Limnol. Oceanogr.* 53: 1746-1758.
- Banas, N., B. Hickey, J. Newton, and J. Ruesink. 2007. Tidal Exchange, bivalve grazing, and patterns of primary production in Willapa Bay, WA. *Mar. Ecol. Progr. Ser.* 341:123-139.
- Rynearson, T.A., J.A. Newton, and E.V. Armbrust. 2006. Spring bloom development, genetic variation, and population succession in the planktonic diatom *Ditylum brightwellii*. *Limnol. Oceanogr.* 51(3): 1249–1261.
- Newton, J.A., E. Siegel, and S.L. Albertson. 2003. Changes in Puget Sound and the Strait of Juan de Fuca during the 2000-01 drought. *Canadian Water Resources J.* 28(4): 715-728.
- Newton, J. A. and Horner, R. A. 2003. Use of phytoplankton species indicators to track the origin of phytoplankton blooms in Willapa Bay, Washington. *Estuaries*, 26: 1071-1078.

Synergistic Activities:

I work to promote observations of the marine ecosystem, spanning estuaries, coastal waters, and the open ocean, using a systems view approach to assess climate forcing and human drivers, and with a specific focus on OA and hypoxia.

Communication with elected officials: Invited to brief U.S. Senate Committee on Commerce, Science and Transportation, June 2013 on ICOOS and FOARAM Acts; briefed WA State Legislature during 2005-2008 on science needs and research. Governor appointee to WA Governor's Blue Ribbon Panel on Ocean Acidification; Member of West Coast Ocean Acidification and Hypoxia Science Panel. As Co-Director for the WA OA Center, serve the Marine Resource Advisory Council and support/provide WA Legislature briefings.

Ocean Acidification Observing Network: Participate in global to local scale ocean acidification observing efforts. Lead author for report to design global-scale OA observing network (GOA-ON). Presented GOA-ON overview at GEO Summit in Geneva, UNESCO SIDS in Samoa, and US State Department Roundtable. Member of GOA-ON Steering Committee; hosted the first GOA-ON workshop (62 scientists, 23 countries) to scope global effort.

Tribal STEM and experiential education: Work with Northwest Indian College to entrain their students and develop peer-to-peer knowledge transfer from shared cruises through my UW Friday Harbor Laboratories Research Apprenticeship on the “Pelagic Ecosystem Function.” This FHL program is designed to mentor undergraduate apprentices in ecosystem-wide research, cutting across traditional research lines and using discovery methods of research.

Regional research: As Co-Director of Washington OA Center, coordinate academic, state, federal, tribal and industry partners in monitoring, forecasting, and biological effects experiments. Co-manager and PI for Hood Canal Dissolved Oxygen Program, oversight of hypoxia observational and modeling; included volunteer involvement, stakeholder outreach, and public education in community. Worked with two tribes to include HCDOP science into their programs and mentored tribal members/scientists. This work was featured at UW Tribal Summits 2007-2010.

P. MICHAEL KOSRO

July 28, 2015

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A. EDUCATION AND EMPLOYMENT

B.A.	Physics	University of Calif., Santa Cruz	1973
M.S.	Petr. Engr.	Stanford University	1977
Ph.D.	Oceanography	University of Calif., San Diego	1985

PROFESSIONAL BACKGROUND

Research Associate (Postdoctoral), Oregon State University	1984-1986
Assistant Professor (Senior Research), OSU	1986-1992
Associate Professor (Senior Research), OSU	1992-2001
Associate Professor, OSU	2001-2007
Professor, OSU	2007-present
Outer Continental Shelf Scientific Committee, MMS/BOEM	2003-2011
Vice Chair, NANOOS regional association of IOOS	2012-present

B. Selected Recent Publications (of 68 peer-reviewed publications)

Kim, Sung Yong, Alexander L. Kurapov, and P. Michael Kosro. Influence of varying upper ocean stratification on coastal near-inertial currents. Manuscript 2015JC011153, submitted to Journal of Geophysical Research, 7/20/2015.

Sherman, Kate, Jack Barth, Flaxen Conway, Craig Risien, Mike Kosro. The Oregon Nearshore Research Inventory project: the importance of science and the scientific community as stakeholders in marine spatial planning. Submitted to Ocean and Coastal Management, April 2015.

Mazzini, Piero L., Craig M. Risien, John A. Barth, Stephen D. Pierce, Anatoli Erofeev, Edward Dever, Michael Kosro, Murry D. Levine, R. Kipp Sherman, Michael Vardaro, 2015 (submitted). Anomalous near-surface low-salinity pulses off the central Oregon coast. Submitted to Science Reports, 2015.02.12.

Yamada, Sylvia Behrens, William Peterson, P. Michael Kosro. Biological and physical ocean indicators predict the success of an invasive crab, *carcinus maenas*, in the northern California Current. Accepted for *Marine Ecology Progress Series*. doi: 10.3354/meps11431.

Kim, Sung Yong, P. Michael Kosro, and Alexander L. Kurapov, 2014. Evaluation of directly wind-coherent near-inertial currents off Oregon using a statistical parameterization and analytical and numerical models. *J. Geophys. Res.*, 119(10): 6631-6654, doi: 10.1002/2014JC010115

Osborne, J.J., A.L. Kurapov, G.D. Egbert, and P.M. Kosro, 2014: Intensified Diurnal Tides Along the Oregon Coast. *J. Phys. Oceanogr.*, 44(7): 1689-1703, doi:10.1175/JPO-D-13-0247.1.

Kim, Sung Yong, and P. Michael Kosro, 2013. Observations of near-inertial surface currents off Oregon: decorrelation time and length scales. *Journal of Geophysical Research*, 118, doi: 10.1002/jgrc.20235.

- Hickey, Barbara M., Vera L. Trainer, P Michael Kosro, Nicolaus G. Adams, Thomas P. Connolly, Nancy Kachel, Susan L. Geier, 2013. A springtime source of toxic *Pseudo-nitzschia* cells on razor clam beaches in the Pacific Northwest. *Harmful Algae*, 25:1-14. doi: 10.1016/j.hal.2013.01.006
- Yu, P., A.L. Kurapov, G.D. Egbert, J.S. Allen, P.M. Kosro, 2012. Variational assimilation of HF radar surface currents in a coastal ocean model off Oregon. *Ocean Modelling*, v49-50, 86-104, doi: 10.1016/j.ocemod.2012.03.001.
- Osborne, J.J., A.L. Kurapov, G.D. Egbert, P.M. Kosro, 2011. Spatial and temporal variability of the M2 internal tide generation and propagation on the Oregon shelf. *Journal of Physical Oceanography*, 41(11), 2037-2062, doi: 10.1175/JPO-D-11-02.1.
- Kim, S.Y., E. Terrill, B. Cornuelle, B. Jones, L. Washburn, M. Moline, J. Paduan, N. Garfield, J.L. Largier, G. Crawford, P.M. Kosro, 2011. Mapping the U.S. West Coast surface circulation: A multiyear analysis of high-frequency radar observations. *Journal of Geophysical Research*, 116, doi:10.1029/2010JC006669.
- Hickey, B.M, R.M. Kudela, J.D. Nash, K.W. Bruland, W.T. Peterson, P. MacCready, E.J. Lessard, D.A. Jay, N.S. Banas, A.M. Baptista, E.P. Dever, P.M. Kosro, L.K. Kilcher, A.R. horner-Devine, E.D. Zaron, R.M. McCabe, J.O. Peterson, P.M. Orton, J. Pan and M.C. Lohan, 2010. River Influences on Shelf Ecosystems: Introduction and Synthesis. *Journal of Geophysical Research*, 115, C00B17, doi:10.1029/2009JC005452.

Research Interests

Coastal oceanography; shelf/deep-sea exchange processes; mesoscale currents and fronts; response to winds and topography; interannual variability; eastern boundary currents; California Undercurrent; physical-biological interactions; ocean observing systems.

Participation in National and International Experiments

Coastal Ocean Dynamics Experiment (1981-82); Central California Coastal Circulation Study (1984-85); Coastal Transition Zone experiment (1987-88); Gulf of Tehuantepec Experiment (1989); WOCE Hydrographic Program, Pacific (1992,1994) and Indian (1995) Oceans; TOGA Coupled Ocean-Atmosphere Response Experiment (1992-93); Mesoscale Interactions/Dynamics of Eastern Boundary Currents (1992-94) ; Coastal Mixing and Optics (1996-97); N.E. Pacific GLOBEC (1997-2004); NOPP: Prediction of Wind-Driven Coastal Circulation (1998-2000); Coastal Ocean Advances in Shelf Transport (2000-2004); River Influences on Shelf Ecosystems (RISE) (2003-2007); Coastal Margin Observation and Prediction (NSF STC) (2006-2010); Oregon Coastal Ocean Observation System (OrCOOS) (2006-07); Integrated Ocean Observing System (IOOS)/NANOOS (2003-present)

Major Seagoing Expeditions

At-sea participant in more than 60 research cruises, many as chief scientist, since 1979 (FRONTS) to present, including CODE, CTZ, WOCE, TOGA/COARE, EBC, Coastal Mixing and Optics, NOPP, COAST and GLOBEC, in N. Pacific, S. Pacific, N. Atlantic and Indian Oceans. Mapping of hydrography and currents, with fixed station (CTD) and underway mapping (ADCP, SeaSoar) tools, and time-series measurements from fixed moorings. Since 1996, have added remote-sensing of time-series maps of ocean surface currents from shore, using HF radiowaves (CODAR/SeaSonde).

EMILIO MAYORGA
CURRICULUM VITAE

CONTACT INFORMATION

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EDUCATION

- 2004 Ph.D., University of Washington, Chemical Oceanography: “Isotopic constraints on sources and cycling of riverine dissolved inorganic carbon in the Amazon basin”
1997 M.S., University of Washington, Chemical Oceanography
1992 B.S., Massachusetts Institute of Technology (MIT), Civil Engineering Department

PROFESSIONAL EXPERIENCE

Extensive experience managing diverse environmental data, ranging from local municipal operations to global-scale collaborations.

- 2009- present Research Scientist and Data Manager, Applied Physics Laboratory, University of Washington, Seattle, WA
2007- 2008 Research Associate, Institute of Marine & Coastal Sciences, Rutgers University, New Brunswick, NJ
2001- 2006 Principal Geographical Information Systems (GIS) Analyst, Surface Water Management Division, Snohomish County Public Works, Everett, WA
1993 - 2001 Research Assistant, School of Oceanography, University of Washington, Seattle, WA

NANOOS DMAC LEAD ROLE

NANOOS DMAC (Data Management And Communications) Committee Chair. Leads the NANOOS data management (DAC) team, ensuring that all data collected by the program are timely, properly preserved, and made available via IOOS standard services. Coordinates and leads the implementation of IOOS DMAC functional capabilities involving data integration, management, quality control, distribution and archiving. Coordinates DAC activities among NANOOS DAC partners and serves as primary point of contact between NANOOS, the DAC team, data providers, peer RA DMAC teams, and the IOOS Program Office DMAC team. Also provides coordination with other relevant Cyberinfrastructure and data initiatives regionally, nationally and internationally.

SELECTED PUBLICATIONS AND PRESENTATIONS

Peer-Reviewed Publications

- Hsu, L., E. Mayorga, J.S. Horsburgh, M.R. Carter, K.A. Lehnert and S.L. Brantley. 2017. Enhancing interoperability and capabilities of Earth Science data using the Observations Data Model 2 (ODM2). *Data Science Journal* 16(4):1-16, doi:10.5334/dsj-2017-004
Horsburgh, J.S., A.K. Aufdenkampe, E. Mayorga, K.A. Lehnert, L. Hsu, L. Song, A.S. Jones, S.G. Damiano, D.G. Tarboton, D. Valentine, I. Zaslavsky and T. Whitenack. 2016. Observations Data Model 2: A community information model for spatially discrete Earth observations. *Environmental Modelling & Software* 79:55-74, doi:10.1016/j.envsoft.2016.01.010
Lee, R.Y., S. Seitzinger and E. Mayorga. 2016. Land-based nutrient loading to LMEs: A global watershed perspective on magnitudes and sources. *Environmental Development* 17(Supp. 1):220-229, doi:10.1016/j.envdev.2015.09.006
Garcia, H.E., C. Cosca, A. Kozyr, E. Mayorga, C. Chandler, R.W. Thomas, K. O'Brien, W. Appeltans,

- S. Hankin, J.A. Newton, A. Gutierrez, J.-P. Gattuso, L. Hansson, M. Zweng, and B. Pfeil. 2015. Data management strategy to improve global use of ocean acidification data and information. *Oceanography* 28(2):226–228, doi:10.5670/oceanog.2015.45
- Valentini, R., A. Arneeth, A. Bombelli, S. Castaldi, R. Cazzolla Gatti, F. Chevallier, P. Ciais, E. Grieco, J. Hartmann, M. Henry, R. A. Houghton, M. Jung, W. L. Kutsch, Y. Malhi, **E. Mayorga**, et al. 2014. A full greenhouse gases budget of Africa: synthesis, uncertainties and vulnerabilities. *Biogeosciences* 11: 381-407, doi:10.5194/bg-11-381-2014
- Raymond, P. A., Hartmann, J., Lauerwald, R., Sobek, S., McDonald, C., Hoover, M., Butman, D., Striegl, R., **Mayorga, E.**, Humborg, C., Kortelainen, P., Dürr, H., Meybeck, M., Ciais, P. and Guth, P. 2013. Global carbon dioxide emissions from inland waters. *Nature* 503(7476): 355-359, doi:10.1038/nature12760
- Aufdenkampe, A.K., **E. Mayorga**, P.A. Raymond, J. Melack, S.C. Doney, S.R. Alin, R.E. Aalto and K. Yoo. 2011. Riverine coupling of biogeochemical cycles between land, oceans and atmosphere. *Frontiers in Ecology & Environment* 9(1): 53-60, doi:10.1890/100014
- Fekete, B.M., D. Wisser, C. Kroeze, **E. Mayorga**, L. Bouwman, W.M. Wollheim and C. Vörösmarty. 2010. Millennium Ecosystem Assessment scenario drivers (1970-2050): Climate and hydrological alterations. *Global Biogeochemical Cycles* 24: GB0A12, doi:10.1029/2009GB003593
- Harrison, J., A.F. Bouwman, **E. Mayorga** and S. Seitzinger. 2010. Magnitudes and sources of dissolved inorganic phosphorus inputs to surface fresh waters and the coastal zone: A new global model. *Global Biogeochemical Cycles* 24: GB1003, doi:10.1029/2009GB003590
- Mayorga, E.**, S.P. Seitzinger, J.A. Harrison, E. Dumont, A.H.W. Beusen, A.F. Bouwman, B. Fekete, C. Kroeze and G. Van Dreht. 2010. Global Nutrient Export from WaterSheds 2 (NEWS 2): Model development and implementation. *Environmental Modeling & Software* 25: 837-853, doi:10.1016/j.envsoft.2010.01.007
- Seitzinger, S., **E. Mayorga**, A.F. Bouwman, C. Kroeze, A.H.W. Beusen, G. Billen, G. Van Dreht, E. Dumont, B.M. Fekete, J. Garnier and J.A. Harrison. 2010. Global nutrient river export: A scenario analysis of past and future trends. *Global Biogeochemical Cycles* 24: GB0A08, doi:10.1029/2009GB003587
- Vörösmarty, C.J., D. Conley, P. Döll, J. Harrison, P. Letitre, **E. Mayorga**, J. Milliman, S. Seitzinger, J. van der Gun and W. Wollheim. 2009. Chapter 10: The Earth's natural water cycles, pp 166-180. In: World Water Assessment Programme. *The United Nations World Water Development Report 3: Water in a Changing World (WWDR-3)*. Paris: UNESCO, and London: Earthscan. <http://www.unesco.org/water/wwap/wwdr/wwdr3/>
- Aufdenkampe, A.K., **E. Mayorga**, J.I. Hedges, C.A. Llerena, P.D. Quay, J. Gudeman, A.V. Krusche and J.E. Richey. 2007. Organic matter in the Peruvian headwaters of the Amazon: Compositional evolution from the Andes to the lowland Amazon mainstem. *Organic Geochemistry* 38: 337-364
- Mayorga, E.**, A.K. Aufdenkampe, C.A. Masiello, A.V. Krusche, J.I. Hedges, P.D. Quay, J.E. Richey and T.A. Brown. 2005. Young organic matter as a source of carbon dioxide outgassing from Amazonian rivers. *Nature* 436: 538-541, doi:10.1038/nature03880
- Mayorga, E.**, M.G. Logsdon, M.V.R. Ballester and J.E. Richey. 2005. Extracting cell-to-cell land surface drainage paths from digital channel networks, with an application to the Amazon basin. *Journal of Hydrology* 315: 167-182
- Grimm, N.B., S.E. Gergel, W.H. McDowell, E.W. Boyer, C.L. Dent, P.M. Groffman, S.C. Hart, J.W. Harvey, C.A. Johnston, **E. Mayorga**, M.E. McClain and G. Pinay. 2003. Merging aquatic and terrestrial perspectives of nutrient biogeochemistry. *Oecologia* 442: 485-501
- McClain, M.E., E.W. Boyer, C.L. Dent, S.E. Gergel, N.B. Grimm, P.M. Groffman, S.C. Hart, J.W. Harvey, C.A. Johnston, **E. Mayorga**, W.H. McDowell and G. Pinay. 2003. Biogeochemical hot

spots and hot moments at the interface of terrestrial and aquatic ecosystems. *Ecosystems* 6: 301-312

Other Publications

- Mayorga, E.** 2012. Feature Article: IOOS, NANOOS and SECOORA DMAC Project Advancing IOOS International Partnerships. *IOOS Association National and Regional Coastal and Ocean Observing News, December 2012.*
- Haines, S., V. Subramanian, **E. Mayorga**, D. Snowden, R. Ragsdale, C. Rueda and M. Howard. 2012. IOOS vocabulary and ontology strategy for observed properties. *Proc. MTS/IEEE Oceans'12*, doi:10.1109/OCEANS.2012.6405083
- Newton, J., D. Martin, **E. Mayorga**, A. Devol, R. Feely, S. Alin, B. Dewey, B. Eudeline, A. Barton, A. Suhrbier, A. Baptista and J. Needoba. 2012. NANOOS partnerships for assessing ocean acidification in the Pacific Northwest. *Proc. MTS/IEEE Oceans'12*, doi:10.1109/OCEANS.2012.6405086
- Patterson, J., J. Thomas, L. Rosenfeld, J. Newton, L. Hazard, J. Scianna, R. Kudela, **E. Mayorga**, C. Cohen, M. Cook, M. Otero and J. Adelaars. 2012. Addressing ocean and coastal issues at the West Coast scale through regional ocean observing system collaboration. *Proc. MTS/IEEE Oceans'12*, doi:10.1109/OCEANS.2012.6404937
- Mayorga, E.**, T. Tanner, R. Blair, A.V. Jaramillo, N. Lederer, C.M. Risien and C. Seaton. 2010. The NANOOS Visualization System (NVS): Lessons learned in data aggregation, management and reuse, for a user application. *Proc. MTS/IEEE Oceans'10*, doi:10.1109/OCEANS.2010.5663792
- Risien, C.M., J.C. Allan, R. Blair, A.V Jaramillo, D. Jones, P.M. Kosro, D. Martin, **E. Mayorga**, J.A. Newton, T. Tanner and S.A. Uczekaj. 2009. The NANOOS Visualization System: Aggregating, displaying and serving data. *Proc. MTS/IEEE Oceans'09*, http://ieeexplore.ieee.org/xpls/abs_all.jsp?arnumber=5422325
- Mayorga, E.** 2008. Carbon cycle – Harvest of the century. *Nature* 451: 405-406

Relevant Presentations and Posters (*Invited)

- 2017 **Mayorga, E.**, L. Setiawan, K. Arogyaswamy, M. Leon, E. Aronson, A. Packman & F. Meyer. Cross-site soil and microbial ecology cyberinfrastructure for the CZIMEA project. *EarthCube All-Hands Meeting*, Seattle, WA, 8 Jun.
- 2016 ***Mayorga, E.** GOA-ON Data Portal: Goals, status and plans. *3rd GOA-ON Science Workshop*, Hobart, Australia, 9-11 May.
- 2016 **Mayorga, E.**, J. Newton & T. Tanner. Ocean Acidification monitoring data collaborations, integration and dissemination: The US Pacific NW regional IOOS experience with local to global efforts. *2017 Ocean Sciences Meeting*, New Orleans, LA, 23 Feb.
- 2015 ***Mayorga, E.** US IOOS Regional Data Management: The NANOOS NW Perspective. *MEOPAR Oceans Data Management Expert Forum*, Montreal, 18 Nov.
- 2013 ***Mayorga, E.** Desiring, getting, sharing and using your water quality data: Musings on audience, archetypes, communities and approaches. *CUAHSI Conference on Hydroinformatics and Modeling*, Logan, UT, 17–19 Jul
- 2012 **Mayorga, E.**, J. Newton and C. Angell. NANOOS - Shellfish Growers Partnerships: Real-Time Data Access to Increase Understanding of Ocean Acidification. *Annual Pacific Coast Shellfish Growers Association Meeting*, Tulalip Reservation, WA, 24-28 Sep
- 2012 ***Mayorga, E.** Ocean Acidification Network Data Issues, Challenges, Opportunities. *California Current Acidification Network Workshop*, La Jolla, CA, 27–78 Aug
- 2011 ***Mayorga, E.**, H. Kerkering and C. Cohen. IOOS West Coast Regional Experience and Capabilities. *West Coast Regional Data Framework Workshop*. 13-14 Dec

- 2011 ***Mayorga, E.** Complex Marine Data Visualization via GIS Web Services. *University of Washington GIS Day Ignite Talk*, Seattle, WA, 16 Nov
- 2011 ***Mayorga, E.** Regional network example: Northwest Association of Networked Ocean Observing Systems (NANOOS)/OOS Case Study. *Oregon Coastal & Marine Data Workshop*, Salem, OR, 6-7 Jun
- 2011 **Mayorga, E.** and T. Tanner. 2011. The NANOOS Visualization System (NVS): Data aggregation, management and reuse for a coastal-monitoring user application in the Pacific NW. *CUAHSI Conference on Hydrologic Data and Information Systems*, Logan, UT, 22-24 Jun
- 2011 *Newton, J., **E. Mayorga**, J. Allan, S. Rumrill, A. Lanier, C. Bernthal, G. Galasso, E. Bowlby and J. Hennessey. IOOS' role in contributing to national and regional capability for Coastal Marine Spatial Planning: A view from the NANOOS Regional Association. *ASLO Aquatic Sciences Meeting*, San Juan, Puerto Rico, 13-18 Feb.
- 2010 ***Mayorga E.** and D. Jones. Using IOOS to increase efficiencies in offshore fisheries: The NANOOS Pacific NW experience. *First Energy Use in Fisheries Symposium: Improving Efficiency and Technological Innovations from a Global Perspective*, Seattle, WA, 14-17 Nov
- 2010 ***Mayorga, E.** Global NEWS model and scenarios, with results on carbon river fluxes and transformations, focusing on the tropics. *Experimental, typological and modelling approaches to evaluate at global and regional scales horizontal and vertical fluxes from land to the open ocean through rivers, estuaries and the coastal ocean*, Liege, Belgium, 4-5 Oct
- 2010 **Mayorga, E.**, D. Jones and R. Blair. Regional to local IOOS data management and interoperability: Perspective from the trenches (NANOOS, US Pacific NW). *2010 Ocean Sciences Meeting*, Portland, OR, 22-26 Feb.
- 2010 ***Mayorga, E.** Global river nutrient export: Overview, and scenario analysis of past and future trends. *Departmental Seminar, Department of Earth System Science, University of California*, Irvine, CA, 27 Jan.
- 2006 **Mayorga, E.** Snohomish County surface water fee assessment: A system for routine data entry, query, and analysis integrating GIS and a relational database. *Wash. URISA GIS Conference*, Tacoma, WA, 9-11 May.
- 2005 **Mayorga, E.** and Britsch, S. Automation and integration of drainage outfall monitoring data for assessing NPDES water quality compliance. *Wash. URISA GIS Conference*, Seattle, 9-11 May.

JOHN B. MICKETT

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SUMMARY

A sea-going physical oceanographer with extensive technical and field experience, Dr. Mickett has participated in or led more than 40 oceanographic research cruises over the past 14 years. He is presently a Senior Oceanographer at the Applied Physics Laboratory, University of Washington where he is a principal investigator on six projects. For three of these projects Dr. Mickett leads a team of 5-6 scientists and engineers who design, build, maintain and analyze the data from 8 coastal real-time research moorings.

PROFESSIONAL PREPARATION

- PhD Physical Oceanography, August 2007, University of Washington, *Turbulent Entrainment Fluxes in the Eastern Pacific Warm Pool*, Prof. M. Gregg, advisor
- MSc Physical Oceanography, 2002, University of Washington, *Direct measurements of diapycnal mixing in a fjord reach—Puget Sound’s Main Basin*, Prof. M. Gregg, advisor
- BSc Marine Science, 1994, U.S. Coast Guard Academy (High Honors)

APPOINTMENTS

- 2010–present: Senior Oceanographer, Applied Physics Laboratory, University of Washington (APL-UW)
- 2008–2010: Oceanographer III, APL-UW
- 2007–2008: Postdoctoral Researcher, APL-UW
- 1999–2007: Research Assistant, APL-UW
- 1994–2002: Commissioned Officer, United States Coast Guard

SELECT PUBLICATIONS

1. Zhang, S., M. H. Alford and J. B. Mickett, 2015: “Characteristics of Nonlinear Internal Waves on the Washington Continental Shelf”, *Journal of Geophysical Research*, in press.
2. Voet, G., J. B. Girton, M. H. Alford, G. S. Carter, J. M. Klymak and J. B. Mickett, 2015: “Pathways, Volume Transport and Mixing of Abyssal Water in the Samoan Passage”, *Journal of Physical Oceanography*, in press.
3. Alford, M. H., J. B. Girton, G. Voet, G. S. Carter, J. B. Mickett and J. M. Klymak, 2013, “Turbulent mixing and hydraulic control of abyssal water in the Samoan Passage” *Geophys. Res. Lett.*, 40, 4668–4674.
4. Alford, M. H., J. Mickett, S. Zhang, P. MacCready, Z. Zhao, and J. Newton, 2012, “Internal Waves on the Washington Continental Shelf,” *Oceanography*, 25, 32–46.
5. Newton, J., M. Alford, J. Mickett, J. Payne, and F. Stahr, 2011, “The Northwest Association of Networked Ocean Observing Systems and opportunities for acoustical applications,” *J. Acoust. Soc. Am.*, 129, 2371, doi:10.1121/1.3587676
6. Mickett, J.B., Y.L. Serra, M.F. Cronin, and M.H. Alford, 2010, “Resonant forcing of mixed layer inertial motions by atmospheric easterly waves in the northeast tropical Pacific,” *J. Phys. Oceanogr.*, 40, 401–416
7. Mickett, J. B., 2007, *Turbulent entrainment fluxes within the eastern Pacific warm pool*, Ph.D. Thesis, University of Washington, URI: <http://hdl.handle.net/1773/11005>.
8. Wijesekera, H. W., D. L. Rudnick, C. A. Paulson, S. D. Pierce, S. Pegau, J. B. Mickett and M. C. Gregg, 2005: “Upper ocean heat and freshwater budgets in the Eastern Pacific Warm Pool,” *Journal of Geophysical Research*, 110, C08004.
9. Mickett, J. B., M. C. Gregg and H. E. Seim, 2004: “Direct measurements of diapycnal mixing in a fjord reach—Puget Sound’s Main Basin,” *Estuarine Coastal and Shelf Science*, 59, 539–558.

António Melo Baptista

Professor, Oregon Health & Science University (OHSU)
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Education

Massachusetts Institute of Technology	Civil Engineering	Ph.D., 1987	M.Sc., 1984
Academia Militar, Portugal	Civil Engineering	B.S., 1978	

Appointments

s. 2011 *Director*, Institute of Environmental Health, OHSU
s. 2006 *Director*, NSF Science and Technology Center for Coastal Margin Observation & Prediction
2003-2006 *Chair*, Department of Environmental & Biomolecular Systems, OHSU
2000-2002 *Chair*, Department of Environmental Science and Engineering, OHSU
1999-2008 *Professor* (joint appointment), Dep. of Computer Sci. & Electrical Engng., OHSU¹
s. 2003 *Professor*, Department (then Division) of Environmental and Biomolecular Systems, OHSU
1987-2002 *Assist. to Assoc. Professor*, then *Professor*, Dep. of Environmental Sci. & Engng, OHSU¹
1979-1987 *Researcher*, Estuaries Division, Laboratório Nacional de Engenharia Civil, Lisboa, Portugal

Select Peer-Reviewed Publications

I have published, often collaboratively, in areas including computational science; physical, biogeochemical & microbial oceanography; fisheries; natural hazards; and computer science. Examples:

1. T Kärnä, AM Baptista, JE Lopez, PJ Turner, C McNeil, TB Sanford. 2015. Numerical modeling of circulation in high-energy estuaries: A Columbia River estuary benchmark. *Ocean Modelling*. DOI: 10.1016/j.ocemod.2015.01.001
2. BJ Burke, JJ Anderson, AM Baptista. 2014. Evidence for multiple navigational sensory capabilities by Chinook salmon. *Aquatic Biology*. DOI: 10.3354/ab00541
3. Gilbert M, Needoba JA, Koch C, Barnard A, Baptista AM. 2013. Nutrient Loading and Transformations in the Columbia River Estuary Determined by High Resolution In Situ Sensors. *Estuaries and Coasts*. DOI: 10.1007/s12237-013-9597-0
4. Maier D, VM Megler, AM Baptista, A Jaramillo, C Seaton, P Turner. 2012. Navigating Oceans of Data. DOI:10.1007/978-3-642-31235-9_1
5. Roegner GC, JA Needoba, AM Baptista. 2011. Coastal Upwelling Supplies Oxygen-Depleted Water to the Columbia River Estuary. *PLoS ONE*. 6(4):e18672. DOI:10.1371/journal.pone.0018672
6. Smith M, L Herfort, K Tyrol, D Suci, V Campbell, B Crump, T Peterson, P Zuber, AM Baptista, H Simon. 2010. Seasonal changes in bacterial and archaeal gene expression patterns across salinity gradients in the Columbia River coastal margin. *PLoS ONE*. DOI:10.1371/journal.pone.0013312
7. Burla M, AM Baptista, Y Zhang, S Frolov. 2010. Seasonal and interannual variability of the Columbia River plume: A perspective enabled by multiyear simulation databases. *J. of Geophysical Res.* DOI: 10.1029/2008JC004964
8. Hickey BM, RM Kudela, JD Nash, KW Bruland, WT Peterson, P MacCready, EJ Lessard, DA Jay, NS Banas, A Baptista et al. 2010. River Influences on Shelf Ecosystems: Introduction and synthesis. *J. of Geophysical Research*. DOI:10.1029/2009JC005452
9. Frolov S, AM Baptista, Y Zhang, C Seaton. 2009. Estimation of ecologically significant circulation features of the Columbia River estuary and plume using a reduced-dimension Kalman filter. *Continental Shelf Research*. DOI:10.1016/j.csr.2008.11.004
10. Baptista AM, Howe B, Freire J, Maier D, Silva CT. 2008. Scientific Exploration in the Era of Ocean Observatories. *Computing in Science & Engineering*. DOI: 10.1109/MCSE.2008.83

¹ The Oregon Graduate Institute and the Oregon Health Sciences University merged on July 1st, 2001, to form the Oregon Health & Science University. Because the appointment extends across the merger date, OHSU is listed as the affiliation.

Synergistic Activities

- **Center for Coastal Margin Observation & Prediction (CMOP):** I am the director of this multi-institutional NSF Science and Technology Center, one of few STCs to address ocean issues and the only ever focused on coastal margins. Using a blend of data-driven and hypothesis-driven science, we are learning how specialized biological hotspots enable a fast-flowing estuary to remain an effective bioreactor—and are characterizing the estuary's variability and susceptibility for change. Our research catalyzes workforce development, broadening participation and science-driven regional management and decision-making. Partners include research universities, 4-year colleges, K-12 programs, industry, and state, federal and tribal agencies. Formal resolutions of the Affiliated Tribes of Northwest Indians support our approach to tribal engagement. <http://www.stccmop.org>
- **Science and Technology University Research Network (SATURN):** I provide scientific leadership for this *collaboratory* focused on the Columbia River estuary. Initiated in 1996 (then CORIE, **Columbia River Estuary**), and substantially expanded since the inception of CMOP, it integrates interdisciplinary observations, simulations and information flows. It anchors all CMOP research and regional applications that include estuarine and plume oceanography; ocean/estuarine survival conditions for salmon stocks; coastal and estuarine hypoxia and acidification; and physical and ecological impacts of climate change and human activities. <http://www.stccmop.org/saturn>
- **1964 US-Canada Columbia River Treaty Review:** In a high-profile example of the transformative power of collaboratories in support of regional policy, my team used legacy SATURN simulation databases (with credibility established through comparisons with observations), together with multi-variate regressions and fast model surrogates, to simulate in ~1 month the 70-year impact on the estuary of 11 alternative scenarios of flow regulation. We then helped translate the results for high-level inclusion in the *U.S. Entity Regional Recommendation for the Future of the Columbia River Treaty after 2024*
- **Our Global Estuary:** Recognizing the opportunity and urgency to add a global perspective to estuarine science, policy and management, I co-chair the steering committee of a community-driven initiative launched to (a) promote the role of estuaries as essential but sensitive elements of regional and global sustainability; (b) facilitate the flow of information to enable management decisions that preserve the economic, ecosystem, and human experiential benefits of estuaries, and (c) foster more consistent collection and use of data through development of a network of estuarine observation and prediction systems. A workshop in late 2013 generated broad national consensus, and a follow-up international workshop is being planned for 2016, in Chennai, India. <http://ourglobalestuary.org>
- **Select software:** I co-developed (with YJ Zhang) SELFE, a community Semi-Implicit Eulerian-Lagrangian Finite Element model for 3D estuary/ocean circulation that is applied worldwide and which scope has been expanded to sedimentary, biogeochemical and ecosystem processes. I also co-developed (with T Leen, S Frolov et al.) RDDA, a software for **Reduced-Dimension Data Assimilation**. I supervise the development of SATURN products, including [Data Explorer](#), [Virtual Columbia River](#) and [Watches](#). SELFE: http://www.stccmop.org/knowledge_transfer/software/selfe
RDDA: http://www.ohsu.edu/tech-transfer/portal/technology.php?technology_id=830317

Select Collaborators: Bradley Tebo, Joseph Needoba, Twanya Peterson, Holly Simon, Peter Zuber (OHSU); Fred Prahl, Yvette Spitz, James Lerczak (OSU); Tom Sanford, Barbara Hickey (UW); David Maier (PSU); Margaret Leinen (SIO); Megan Davis (FAU); others

Post-Docs Supervised: T Kärnä, C Llebot (with Spitz) (current); A Chawla, K Cho, S Das, A Farrenkopf, S Frolov, B Howe, E Myers, Z Yang, Y Zhang, JP Rinehimer (with Sanford) (former)

Students Supervised: J Lopez, M Rostaminia, K Morrice (PhD; current); M Burla, A Fortunato, S Frolov, E Myers III, A Oliveira, Y Wang and T Wood (PhD; graduated); P Welle, N Bandolin, J Darland, N Hyde, R Kilgren, E Myers III, A Oliveira, A Racicot, J Remédio, C Seaton, W Sommerfield and M Vantrease (MSc; graduated); C Boshell, K Buddemeyer, C DeSouza, M Flier, P Frazier, S Hardy, E Martinez-Soto, L Pallin, S Radford, S Reisberg, A Walker (undergraduate interns); M Conti, M Espie, A Franco, M George, K Haynes, W Johnson, C Kim, J McDowell, J McQueen, R Mead, S Reid, M Reyna, N Shah, P Shah, G Tobar-Dupres (high school interns)

Jonathan C. Allan, Coastal Geomorphologist, Coastal Field Office, Oregon Department of Geology and Mineral Industries, P.O. Box 1033, Newport, OR97365; Ph: (541) 574-6658; jonathan.allan@state.or.us

Education: Ph.D./Geography: University of Canterbury, Christchurch, New Zealand (1998); M.Sc. (Honours)/ Geography: University of Canterbury, Christchurch, New Zealand (1992); B.Sc./Geography: University of Canterbury, Christchurch, New Zealand (1990)

Employment: Coastal Geomorphologist with the Oregon Department of Geology and Mineral Industries (2001-present); Courtesy Faculty Staff Member with the College of Oceanic & Atmospheric Sciences, Oregon State University (2001-present); Post-Doctoral Research Associate working with Professor Paul Komar in the College of Oceanic & Atmospheric Sciences, Oregon State University (1999-2001);

Memberships, Professional Associations and Awards: American Geophysical Union; Coastal Education & Research Foundation, Inc.; 2015 GSA Environmental and Engineering Geology Division (EEGD) E.B. Burwell, Jr. Award

Selected Publications

- Allan, J.C., Ruggiero, P., Garcia, G., O'Brien, F., Roberts, J.T., and Stimely, L., 2015, Coastal Flood Hazard Study, Tillamook County, Oregon: Oregon Department of Geology and Mineral Industries, *Special Paper 47*, 283 p.
- Hapke, C.J.; Adams, P.N.; Allan, J.; Ashton, A.; Griggs, G.B.; Hampton, M.A.; Kelly, J., and Young, A.P., 2014. *Rocky Coast Geomorphology: A Global Synthesis – The USA*. In: Kennedy, D.M.; Stephenson, W.J., and Naylor, L. (ed.), *Rock Coast Geomorphology: A Global Synthesis*. London, Geological Society Publishing House, *Memoirs*, 40. pp. 135-152.
- Komar, P.D., Allan, J.C. and Ruggiero, P., 2012. U.S. Pacific Northwest Coastal Hazards: Tectonic and Climate Controls. In: C.W. Finkl (Editor), *Coastal Hazards*. Springer.
- Allan, J.C. and Ozkan-Haller, T., 2012. Mapping the wave climate in the nearshore offshore the Pacific Northwest coast, *Sidelights*. The Council of American Master Mariners, Inc, Vancouver, WA, 18-19.
- Allan, J.C., Martin, D.L. and Newton, J., 2012. Using social networking, mobile apps to distribute tsunami hazard information, *Sea Technology*. Compass Publications, Arlington, Virginia, pp. 61-64.
- Allan, J.C.; Komar, P.D.; Ruggiero, P., and Witter, R.C., 2012. The March 2011 Tōhoku Tsunami and Its Impacts Along the U.S. West Coast. *Journal of Coastal Research*, 28(5), 1142-1153.
- Martin, D.L., Allan, J.C., Newton, J., Jones, D.W., Mikulak, S., Mayorga, E., Tanner, T., Lederer, N., Sprenger, A., Blair, R., Uczekaj, S.A., 2011: Using Web-based and social networking technologies to disseminate coastal hazard mitigation information within the Pacific Northwest component of the Integrated Ocean Observing System (IOOS). *Proc. Oceans'11, Oceans of Opportunity: International cooperation and partnership across the Pacific*, Marine Technology Society, Kona, Hawaii.
- Komar, P.D., Allan, J.C. and Ruggiero, P., 2011. Sea Level Variations along the U.S. Pacific Northwest Coast: Tectonic and Climate Controls, *Journal of Coastal Research*, 27(5): 808-823.
- Barnard, P., Allan, J., Hansen, J, Kaminsky, G., Ruggiero, P. and Doria, A., 2011. The impact of the 2009-10 El Niño on U.S. West Coast beaches, *Geophysical Research Letters*, 38, L13604.
- Allan, J.C., P.D. Komar, P. Ruggiero, 2011: Storm surge magnitudes and frequency on the central Oregon coast. *Proc. Solutions to Coastal Disasters Conf., Amer. Soc. Civil Engrs*, Anchorage, Alaska: 53-64.
- Komar, P.D., Allan, J.C., and Ruggiero, P., 2011. Sea Level Variations along the U.S. Pacific Northwest Coast: Tectonic and Climate Controls. *Journal of Coastal Research*.
- Allan, J.C., Witter, R.C., Ruggiero, P., and Hawkes, A.D., 2009. Coastal geomorphology, hazards, and management issues along the Pacific Northwest coast of Oregon and Washington. In: O'Connor, J.E.; Dorsey, R.J., and Madin, I.P. (ed.), *Volcanoes to vineyards: Geologic field trips through the dynamic landscape of the Pacific Northwest*: Geological Society of America Field Guide 15, The Geological Society of America, pp. 495-519.

BIOGRAPHICAL SKETCH

John (Jack) A. Barth

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A. PROFESSIONAL PREPARATION

University of Colorado, Physics (Cum Laude), B.A., 1982
Mass. Inst. of Technology - Woods Hole Oceanographic Inst., Oceanography, Ph.D., 1988

B. APPOINTMENTS (all at Oregon State University)

Executive Director, Marine Studies Initiative, (2016-present)
Co-Lead, Marine Studies Initiative, (2014-2016)
Associate Dean for Research, College of Earth, Ocean, and Atmospheric Sciences, (2011-2016)
Professor, COAS, (2001-present)
Associate Professor, COAS, (1996-2001)
Associate Professor (Senior Research), COAS, (1995-1996)
Asst. Professor (Senior Research), College of Oceanic & Atmospheric Sciences, (1989-1995)
Research Associate (Postdoctoral), College of Oceanography, OSU (1987-1989)

C. AWARDS

Carl-Gustav Rossby Award, Center for Meteorology and Physical Oceanography, Massachusetts Institute of Technology, 1988.
Pattullo Award for Excellence in Teaching, College of Oceanic and Atmospheric Sciences, OSU, 2010.
Fellow, The Oceanography Society, 2013.

D. PUBLICATIONS

*Selected from Last 5 Years (*graduate student)*

- Pierce, S. D., J. A. Barth, R. K. Shearman and A. Y. Erofeev (2012) Declining oxygen in the Northeast Pacific. *Journal of Physical Oceanography*, **42**:495-501.
- Woodson, C. B., M. A. McManus, J. A. Tyburczy*, J. A. Barth, L. Washburn, P. T. Raimondi, B. A. Menge, and S. R. Palumbi (2012) Coastal fronts set recruitment and connectivity patterns across multiple taxa. *Limnology and Oceanography*, **57(2)**:582-596.
- Lester, S. E., C. Costello, B. S. Halpern, S. D. Gaines, C. White and J. A. Barth (2012) Evaluating tradeoffs among ecosystem services to inform marine spatial planning. *Marine Policy*, <http://dx.doi.org/10.1016/j.marpol.2012.05.022>.
- *Adams, K. A., J. A. Barth and F. Chan (2013) Temporal variability of near-bottom dissolved oxygen during upwelling off central Oregon. *Journal of Geophysical Research*, **118**, doi:10.1002/jgrc.20361.
- *Mazzini, P. L. F., J. A. Barth, R. K. Shearman and A. Erofeev (2014) Buoyancy-driven coastal currents off the Oregon coast during fall and winter. *Journal of Physical Oceanography*, **44**:2854-2876.

- Keller, A., L. Ciannelli, W. W. Wakefield, V. Simon, J. A. Barth and S. D. Pierce (2014) Occurrence of demersal fishes in relation to near-bottom oxygen levels within the California current large marine ecosystem. *Fisheries Oceanography*, **24**:162-176.
- *Mazzini, P. L. F., C. M. Risien, J. A. Barth, S. D. Pierce, A. Erofeev, E. P. Dever, P. M. Kosro, M. D. Levine, R. K. Shearman and M. F. Vardaro (2015) Anomalous near-surface low-salinity pulses off the central Oregon coast. *Nature Scientific Reports*, doi:10.1038/srep17145.
- *Suanda, S. H. and J. A. Barth (2015) Semidiurnal baroclinic tides on the central Oregon inner shelf. *Journal of Physical Oceanography*, **45**:2640-2659, doi: <http://dx.doi.org/10.1175/JPO-D-14-0198.1>.

Other Significant Publications (*graduate student)

- Barth, J. A., S. D. Pierce and R. M. Castelao* (2005) Time-dependent, wind-driven flow over a shallow mid-shelf submarine bank. *Journal of Geophysical Research*, 110(C10), C10S05, doi:10.1029/2004JC002761.
- Barth, J. A., S. D. Pierce and T. J. Cowles (2005) Mesoscale structure and its seasonal evolution in the northern California Current System, *Deep-Sea Research II*, **52**:5-28.
- Barth, J. A., B. A. Menge, J. Lubchenco, F. Chan, J. M. Bane, A. R. Kirincich*, M. A. McManus, K. J. Nielsen, S. D. Pierce and L. Washburn (2007) Delayed upwelling alters nearshore coastal ocean ecosystems in the Northern California Current. *Proc. Natl. Acad. Sci., USA*, **104**:3719-3724.
- Chan, F., J. A. Barth, J. Lubchenco, A. Kirincich*, H. Weeks, W. T. Peterson, and B. A. Menge (2008) Novel emergence of anoxia in the California Current System, *Science*, **319**:920.
- Checkley, D. and J. A. Barth (2009) Patterns and processes in the California Current System. *Progress in Oceanography*, doi:10.1016/j.pcean.2009.07.028.

E. SYNERGISTIC ACTIVITIES

- Participant in science planning activities: Global Ocean Ecosystems Dynamics Eastern Boundary Current Program Implementation Team, 1993-1994; NSF Coastal Ocean Processes (CoOP) Wind-Driven Transport Planning, 1993; NSF Regional Class Research Vessel Design Scientific Oversight Committee, 2012-present.
- Public science lectures: Active participant in Operation Pathfinder Teacher Education Program, OSU Hatfield Marine Science Center, Newport, OR; Led public tours of R/V Wecoma, R/V Thomas G. Thompson and R/V Roger Revelle as part of COAST and GLOBEC NEP (2001-2002).
- Input to ocean policy: Coastal Processes and Ballast Water Workshop, Pacific States Marine Fisheries Commission, 2002; Oregon Ocean Policy Advisory Council Science & Technical Advisory Committee, 2006-present. West Coast Ocean Acidification & Hypoxia Science Panel, 2013-2016.
- Leadership of national programs: Global Ocean Ecosystems Dynamics Northeast Pacific Program Exec. Comm., 2000-2006; NSF Coastal Ocean Processes (CoOP) Steering Comm., 2000-2004; Northwest Association of Networked Ocean Observing Systems (NANOOS) Steering Committee, 2003-2007; NSF ORION Observatory Steering Committee, 2004-2007.
- Service to scientific community: Eastern Pacific Oceanic Conference (EPOC), Secretary, 1992-1996, President, 1998-2001; *Journal of Physical Oceanography*, Editor, 2007-2011, Associate Editor, 2011-present; Gordon Research Conference on Coastal Ocean Circulation, Vice Chair, 2009-2013, Co-Chair, 2013-present.

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Education

Ph.D., 2008, Marine Science, University of Sydney, Sydney, NSW, Australia
Dissertation: *Shoreface Behaviour and Equilibrium*
M.S., 2000, Oceanography, University of Washington, Seattle, Washington, USA
B.S., 1989, Ocean Engineering, Florida Institute of Technology, Melbourne, Florida, USA

Licensing

Registered Professional Engineer (Civil), State of Washington

Professional Experience

2007-present WA Department of Ecology, Senior Coastal Engineer (Environmental Engineer 5)
1997-2007 WA Department of Ecology, Coastal Engineer (Environmental Engineer 4)
1995-1997 WA Department of Ecology, Coastal Engineer (Environmental Engineer 3)
1991-1995 WA Department of Ecology, Shoreline Engineer (Environmental Engineer 2)
1989-1991 US Army Corps of Engineers, General Engineer

Selected Publications

- Stevens, A.W., Gelfenbaum, G., Ruggiero, P., and **Kaminsky, G.M.**, 2012. Southwest Washington littoral drift restoration—Beach and nearshore morphological monitoring: US Geological Survey Open-File Report 2012-1175, 67 p.
- Barnard, P. L., Allan, J., Hansen, J. E., **Kaminsky, G.M.**, Ruggiero, P. and Doria, A., 2011. The impact of the 2009–10 El Niño Modoki on U.S. West Coast beaches, *Geophysical Research Letters*, 38, L13604, doi:10.1029/2011GL047707.
- Gelfenbaum, G., and **Kaminsky, G.M.**, 2010. Large-scale coastal change in the Columbia River littoral cell: An overview, *Marine Geology*, doi:10.1016/j.margeo.2010.02.007
- Ruggiero, P, Buijsman, M., **Kaminsky, G.**, and Gelfenbaum, G., 2010. Modeling the effects of wave climate and sediment supply variability on large-scale shoreline change, *Marine Geology*, v. 273, pp 127-140.
- Kaminsky, G.M.**, Ruggiero, P., Buijsman, M., McCandless, D., and Gelfenbaum, G., 2010, Historical evolution of the Columbia River littoral cell, *Marine Geology*, v. 273, pp. 96-126.
- Warrick, J.A., George, D.A., Gelfenbaum, G., Ruggiero, P., **Kaminsky, G. M.**, and Beirne, M., 2009. Beach morphology and change along the mixed grain-size delta of the dammed Elwha River, Washington, *Geomorphology*, doi:10.1016/j.geomorph.2009.04.012.
- Kaminsky, G.M.**, Ferland, M.A., Cowell, P.J., Moritz, H.R., and Ruggiero, P. 2007. Shoreface response to sediment deficit, *Proceedings of Coastal Sediments '07*, ASCE, pp. 633–646.
- Ruggiero, P., **Kaminsky, G.M.**, Gelfenbaum, G., and Voigt, B., 2005. Seasonal to interannual morphodynamic variability along a high-energy dissipative littoral cell, *Journal of Coastal Research*, (21) 3 pp. 553-578.
- Kaminsky, G.M.**, Ruggiero, P., and Gelfenbaum, G.R. 1998. Monitoring coastal change in southwest Washington and northwest Oregon during the 1997/98 El Niño, *Shore & Beach*, Vol. 66, 3, pp. 42-51.

Curriculum Vitae (June 16, 2017)
Alexander L. Kurapov

Current position:

Associate Professor
College of Earth, Oceanic and Atmospheric Sciences, Oregon State University
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kurapov@coas.oregonstate.edu

US citizenship: US citizen

Education:

1991: M.Sc., Department of Fluid Dynamics, St-Petersburg Marine Technical University (SPbMTU), Russia
1994: Ph.D., Fluid Dynamics, Department of Applied Mathematics and Mathematical Modeling, SPbMTU, Russia

Academic positions:

Jul 2012-present: Associate Professor (tenure track), College of Earth, Oceanic and Atmospheric Sciences (CEOAS¹), Oregon State University (OSU)
2006-2012: Assistant Professor (tenure track), COAS, OSU
2003-2006: Assistant Professor (Senior Researcher), COAS, OSU
1999-2003: Research Associate, COAS, OSU
1995-1999: Research Associate, P. P. Shirshov Institute of Oceanology, Russian Academy of Sciences, St-Petersburg, Russia,
1994-1995: Post-doctoral visiting researcher, Department of Applied Mathematics and Theoretical Physics, University of Cambridge, UK

Fields of specialization: Coastal ocean dynamics modeling and prediction, data assimilation, tidally and wind driven stratified shelf flows, transport and mixing on the shelf and slope, nearshore dynamics and modeling

Courses taught:

Data Assimilation	Winter 2009	COAS/OSU	(OC679)
Fluid Dynamics	Fall 2009, 2010, 2011	COAS/OSU	(OC670)
Coastal Ocean Modeling (w/ Lab)	Fall 2012	CEOAS/OSU	(OC679)
Stability of Geophysical Flows	Winter 2014	CEOAS/OSU	(OC680)

Scientific Programmer Skills: FORTRAN, MPI, Unix, shell scripting, MATLAB (including Graphical User Interface), finite-difference and finite-element code development, adjoint code development

Curriculum Vitae

TROY TRAVIS TANNER

Software / Interface Engineer

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CONTACT INFO

troyt@apl.uw.edu
206-685-2770

EDUCATION

B.A., University of Washington, Seattle, WA 1997

WORK EXPERIENCE

Senior Software Engineer, Applied Physics Laboratory, UW 2011 - Present
Software Engineer, Applied Physics Laboratory, UW 1997 - 2011
Undergraduate Software Engineer, Applied Physics Laboratory, UW 1993 - 1997

EXPERTISE

Interface design and development	Client-server architecture
Project management	Relational databases
Data visualization	Graphic design
Software development	3-D modeling
Usability testing	Animation

AWARDS & ACTIVITIES

Director's Award, Applied Physics Laboratory 2007
Winner of the American Physical Society fluid motion animation competition 1999
Innovative Technology Award 1997
Guest instructor for post-graduate oceanography and interface design classes 1997

PUBLICATIONS

Mayorga, E., T. Tanner, R. Blair, A.V. Jaramillo, N. Lederer, C.M. Risien, and C. Seaton, "The NANOOS Visualization System (NVS): Lessons learned in data aggregation, management and reuse, for a user application," In Proceedings, MTS/IEEE OCEANS 2010, Seattle, 20-23 September, doi:10.1109/OCEANS.2010.5663792 (MTS/IEEE, 2010).

Risien, C.M., J.C. Allan, R. Blair, A.V. Jaramillo, D. Jones, P.M. Kosro, D. Martin, E. Mayorga, J.A. Newton, T. Tanner, and S.A. Uczekaj, "The NANOOS Visualization System: Aggregating, displaying, and serving data," In Proceedings, MTS/IEEE Oceans, Biloxi, MS, 26-29 October (MTS/IEEE, 2009).

Olsonbaker, J., T. Tanner, and D. Jones, "Improved decision making with Boater Information System," Proc., Georgia Basin Puget Sound Research Conference, 26-29 March, Vancouver, B.C. (2007).

Curriculum Vitae 4/24/2017

Name Parker MacCready
Address Univ. of Washington, Box 355351, Seattle, WA 98185-5351, USA
Phone (206) 685-9588
Email pmacc@uw.edu
URL faculty.washington.edu/pmacc/

Education

1982 B.A. (Architecture) Yale University
1986 M.S. (Engineering Science) California Institute of Technology
Advisor: Dr. T. Y.-T. Wu
1991 Ph.D. (Physical Oceanography) University of Washington
Thesis: Frictional Slowing of Rotating, Stratified Flow along a Sloping Boundary
Advisor: Dr. Peter B. Rhines

Employment

2009- Professor, University of Washington
2013-2014 Visiting Researcher, Microsoft Research (4 months)
2001-2009 Associate Professor, University of Washington
1994-2001 Research Assistant Professor, University of Washington
1993-1994 Research Scientist, University of Washington
1991-1993 Postdoctoral Fellow, University of Miami
1987-1991 Research and Teaching Assistant, University of Washington
1986-1987 Research Assistant, California Institute of Technology
1977-1985 Aeronautical Engineering Technician, AeroVironment Inc.

Honors and Awards

2006 COFS Distinguished Graduate Teaching Award
2005 Donald R. Pritchard Award for the outstanding Physical Oceanography paper published in the journal *Estuaries* during the last 2 years
2005 H. Burr Steinbach Visiting Scholar for Physical Oceanography, WHOI
1997-2002 Office of Naval Research/University of Washington Scholar of Oceanography Award (with Mike Gregg, SECNAV/CNO Chair of Oceanography)
1991-1993 Rosenstiel Post-Doctoral Fellowship, University of Miami
1989 Outstanding Student Paper Award, American Geophysical Union, Ocean Sciences

University Service

School of Oceanography

2014-16	Chair, PO Faculty Search Committee (2 separate searches)
2012-	Member Big Data Committee
2010-	Member, Barnes Replacement Committee, and Science Oversight Committee
2014-	
2006-2010	Faculty Council (at-large member, chair of Expertise Subcommittee)
2004-2005	Member, Strategic Planning Committee
2003	Member, Open House Committee
2002	Organized Oceanography Seminar Series on Coastal and Estuarine Studies
1996-1999	Member, Academic Affairs Committee
1995-1996	Member, Faculty Council

University

2016	Chair, Program on the Environment Director Search Committee
2013-2014	Member, SAFS Program Review Committee
2012	Member, SAFS Director Search Committee
2011	Member, Program on the Environment Director Search Committee
2008-2009	Member, College of the Environment Vision & Governance Committee
2004-2010	Member, Program on the Environment Governing Board/Executive Steering Committee/Advisory Board (Chair 2004-2005, 2005-2006, Executive Committee member 2008-2010)
2000	Speaker, Honor Student Invitational (UW Admissions Office)

Professional Offices, Awards, Service

National Committees and Related Activities

2014-	Member, Technical Working Group for NOAA West Coast Ocean Forecast System (WCOFS)
2012-13	Member, Conference Committee, and session organizer for Gordon Conference on Coastal Ocean Circulation, June 2013
2011	Panelist, NSF Arctic Program
2009	Panelist, NSF Ocean Sciences, Physical Oceanography
2006-2007	Member, Organizing Committee for a workshop (11/2006 La Jolla) on "Climate Impacts on the California Current Ecosystems"
2006-2008	PECS 2006 (Physics of Estuaries and Coastal Seas) Conference Co-organizer with David Jay.
2004-2005	Member, Conference Committee for Gordon Conference on Coastal Ocean Circulation, June 2005
2004	CoOP Benthic Exchange Workshop - Organizing Committee member
2003-2008	CoOP (Coastal Ocean Processes) Scientific Steering Committee member
1998	Panelist, NSF Ocean Sciences, Physical Oceanography

1997 Speaker and participant, NSF APROPOS Workshop (Advances and Primary Research Opportunities in Physical Oceanography Studies)

Washington State

2015- Member, Salish Sea Marine Survival Project Technical Team
2012- Member, PSEMP Modeling Workgroup
2008-2012 Member, Project Advisory Committee and Model Technical Advisory Group, Puget Sound DO Modeling Project, WA Ecology.
2004 Scientific advisory group member, Puget Sound Center for Urban Bay Research, Tacoma WA.
2003 Scientific Review Panel for a marine sewage outfall near Seattle (King County DNR, WA Ecology).
1997 Invited Panelist, Scientific Review for LOTT (Lacey Olympia Tumwater Thurston) Budd Inlet Sewage study, Washington State Dept. of Ecology
1995-1998 Washington State Dept. of Ecology (reviewing annual data reports)

Professional society

2016 Co-convener of session as Salish Sea Ecosystem Conference
2006- Member PECS Steering Committee
2015 Convener of a session at the Coastal Dynamics Gordon Conference
2012 Co-convener two sessions at Ocean Sciences (Feb)
2008 Co-convener, Fall AGU Special Session, " Tidal Processes in Coastal and Estuarine Waters " (Ming Li, convener).
2008 Co-convener, Ocean Sciences Meeting Special Session, "Dynamics of Estuarine Circulation and River Plumes: from Process Studies to Predictive Models" (Ming Li, convener).
2007 Member, Pritchard Award Selection Committee for Estuarine Research Federation
2006 Co-organizer (David Jay lead) PECS Conference, Astoria, OR
2005 Co-convener, Estuarine Research Federation 2005 Meeting Special Session, "Estuarine - coastal ocean exchange of water, energy, and waterborne materials: innovative methods, and /or high resolution observations or modeling" (Chunyan Li, convener, Bob Chant, co-convener).
2004 Convener, AGU Fall Meeting Special Session, "Interdisciplinary River Plume Studies," (Bob Chant, co-convener).
2003 Convener, Estuarine Research Federation 2003 Meeting Special Session, "Estuarine Turbulence" (Rocky Geyer and Stephen Monismith, co-conveners)
2002-2003 Program Committee Member for Estuarine Research Federation 2003 Meeting
2000 Convener, AGU Fall Meeting Special Session: "Estuarine Circulation, Mixing, and Modeling" (Rocky Geyer, co-convener)
2000 Convener, AGU Ocean Sciences Special Session: "Flow over Rough Topography" (Kurt Polzin, co-Convener)

Editorial & Reviewer Services

- 2012- Editorial Board Member, *Encyclopedia of Puget Sound*
2011-2013 Editor, *Journal of Physical Oceanography*
2003-2010 Associate Editor, *Journal of Physical Oceanography*
2006-2008 Lead Guest Editor for special volume of *Continental Shelf Research* from PECS 2006 (Physics of Estuaries and Coastal Seas) conference.
Reviewer for marine-related divisions of NSF, NOAA, EPA, CALFED, California Sea Grant, and CFCSA (Canadian), among others.
Reviewer for numerous journals, including: *Continental Shelf Research*, *Deep-Sea Research*, *Eos*, *Estuaries*, *Journal of Fluid Mechanics*, *Journal of Geophysical Research*, *Journal of Marine Research*, *Journal of Physical Oceanography*, *Limnology and Oceanography*, *AGU Coastal and Estuarine Studies Series*, *Antarctic Journal*, and *ASCE Journal of Waterway, Port, Coastal and Ocean Engineering*, *Nature Geosciences*

Invited Talks

- 2017 Presentation for: NOAA Ecoforecasting Meeting
2017 Public talk for the Bainbridge Island Oatmeal Club, Winslow
2016 Presentation for Olympic Coast National Marine Sanctuary Advisory Council
2016 Public talk at UW Olympic Natural Resources Center, Forks, WA
2016 Public talk for Climate Science on Tap series, Peddler Brewing Co., Seattle, WA
2016 Public talk at Ada's Technical Books, Seattle, WA
2016 Talk for a middle school math class, Olympia
2016 Talk at Salish Sea Ecosystem Conference, Vancouver BC
2016 Sound Waters Talk, Whidbey Island, WA
2015 Salish Sea Marine Survival Workshop Talk, Vancouver, BC
2015 UW Water Seminar
2015 Marine Resources Advisory Council Talk, Pt. Townsend, WA
2015 Warnemunde Turbulence Days Talk, Germany
2015 Science Café, Tacoma, WA
2015 Washington Ocean Acidification Center Symposium, UW
2015 Gordon Research Seminar, Keynote Talk
2015 Advancing Tools for Modeling, Forecasting and Managing for *Vibrio* spp. in Washington State, workshop presentation (April)
2015 The Evergreen State College, PLATO Seminar on Ocean Modeling
2015 School of Oceanography Seminar, Career Overview
2014 Puget Sound Tides and Eddies, Pt. Townsend Marine Center
2014 Microsoft Faculty Summit, Redmond, WA, "Ocean Modeling: *Using the Cloud to Connect Science & the Public*"

- 2013 Meeting of WA Marine Resource Councils, Montesano, to discuss results of DNR Marine Spatial Planning (Mar): "Using Computer Models to Simulate the Circulation & Ecosystem of Pacific Northwest Coastal Ocean"
- 2013 Virginia Institute of Marine Science: 2 talks (Mar) "Modeling Biogeochemistry and Harmful Algal Blooms on the Pacific Northwest Coast" & "Direct Measurement of the Bottom Pressure Field Creating Form Drag on a Headland"
- 2013 Workshop on Cyber Infrastructure for the Physical Sciences - Earth, Ocean, Sky and Space, Hawaii (Feb) "Ocean Modeling: How can new computational tools *transform* our science and how we communicate it?"
- 2012 Salish Sea Marine Survival of Salmon and Steelhead, Bellingham (Nov) "Historical trends of Puget Sound near-surface stratification, from CTD casts at 4 locations"
- 2012 NCAR Climate & Global Dynamics Seminar, Boulder, CO (Oct) "An overview of the physics of estuarine circulation, with biogeochemical implications"
- 2012 UW Water Symposium (Apr) "Physical, biological, and geochemical impacts of riverine systems in marine and estuarine environments"
- 2012 Chesapeake Bay & Puget Sound Health Workshops: Integrating Climate and Environmental Information with Disease Surveillance to Address Pathogens and Algal Toxins of Concern to Public Health (Seattle, Mar)
- 2011 GRC Coastal Ocean Modeling (Jun) "Modeling the estuarine exchange flow of the Salish Sea ...and other estuaries"
- 2011 UC Berkeley Environmental Engineering Seminar: "Physical Causes and Environmental Consequences of the Estuarine Circulation of Puget Sound" (Apr)
- 2011 CHOICE High School, Shelton, WA (Jan)
- 2010 & '11 South Sound Estuary Association: guest lecturer for Estuary Education Workshop (4-6 grade teachers) LOTT, Olympia (Aug)
- 2010 Ocean Sciences "Fundamental Scales of Estuary-Coast Exchange" (Feb)
- 2010 Rutgers University "Fundamentals of Estuarine Circulation" (Feb)
- 2009 GRC Coastal Ocean Circulation "Form Drag Mechanisms in Tidal Flow"
- 2008 Garrett Symposium "Apparent Form Drag in Tidal Flow Past a Headland"
- 2007 Estuarine Research Federation "Estuarine Adjustment"
- 2007 Building Bioregional Literacy Conference, Pacific Lutheran University, WA (lecture on teaching regional environmental science for non-scientists)
- 2007 University of Victoria "Energetics of Coastal and Estuarine Upwelling"
- 2007 EGU Conference, Vienna, "Energetics of Coastal and Estuarine Upwelling"
- 2007 Stanford "Energetics of Coastal and Estuarine Upwelling"
- 2006 Nisqually National Wildlife Refuge, "River of life: Why the brown Columbia makes the Pacific green"
- 2006 Oregon State University, "Energy considerations in a river plume"
- 2006 Ocean Sciences Meeting, "Form Drag on Coastal Flows"
- 2005 WHOI Steinbach lectures, [1] Form Drag, [2] River Plumes, [3] Estuaries
- 2004 Highline Community College, "Three Tree Point"
- 2003 Texas A&M University, School of Oceanography Departmental Seminar

- 2003 EGS-AGU Joint Meeting, Nice, France, "Observations & Modeling of Form Drag on Rough Coastal Topography"
- 2002 Bergen University, Norway, [1] "Boundary Effects on Ocean Circulation," and [2] "Flow over rough coastal topography"
- 2002 Ocean Sciences AGU Meeting, "Estuarine Adjustment and Sensitivity"
- 2000 EPOC Meeting, "Stratified Flow Along a Rough Slope: Separation Drag and Wave Drag"
- 1999 JGOFS Data Workshop #2, "A Diagnostic Budget of Heat and Nitrate in the Southern Ocean Mixed Layer: The Canonical View from Climatologies"
- 1998 Puget Sound Research '98 Conference, "Numerical Circulation Modeling as a Tool for Harmful Algae Bloom Research and Prediction"
- 1997 NSF APROPOS Conference, "In Shallow Water: Basic vs. Applied Science," a 'respondant' talk for Coastal session
- 1996 University of Chicago, "Meridional Circulation across the ACC"
- 1992 Florida State University, "Flow into the Deep Caribbean"

Professional society membership

American Geophysical Union
 American Meteorological Society
 Estuarine Research Federation
 Pacific Estuarine Research Society

Field Work

- 1992 RV Columbus Iselin, Caribbean Sea
- 1996- Strait of Juan de Fuca, Willapa Bay, Puget Sound
- 2001-2002 Three 10-day cruises in Puget Sound (NSF)
- 2003, 6, 9, 12 FHL Summer School, experiments around Puget Sound
- 2006 RV Wecoma, WA & OR Shelf
- 2009-2010 Three Tree Point (NSF PPOD)
- 2013 RV TG Thompson, WA Shelf

Instructional Activities

Courses Taught

Undergraduate:

Course #	Title [credits] (co-Instructor)	Date	Enroll.	Rating/Adj.
OCN 320	Coastal Oceanography [5] (Ogston)	2017 (W)	34	4.1/4.2
OCN 320	Coastal Oceanography [5] (Ogston)	2016 (Sp)	35	4.6/4.4
HA&S 220	Dead Zones around America [5]	2005 (F)	23	4.2

HA&S 220	Sci. & Politics of Sewage in PS [5]	2002 (F)	19	4.6
HA&S 222	Sewage, Science, and Society [5]	2001 (Sp)	18	4.9
GenSt 197h	Tides, Twisters and Gyres [2] (Rhines)	1998 (W)	14	3.9

Graduate:

Course #	Title [credits] (co-Instructor)	Date	Enroll.	Rating/Adj.
OCN 507/480	Puget Sound Oceanography [3] Keister	2015 (W)	22	4.5/4.6
BIOL 533A	Estuarine & Coastal Fluid Dyn. [9] (Geyer)	2012 (Su)	15	4.9
OCN 512/ATM S 509	Geophysical Fluid Dynamics I [4]	2012 (W)	13	4.1
OCN 506/497	Puget Sound Oceanography [3] Keister	2011 (W)	9+5UG	4.1
OCN 511/AMATH-ATM S 505	Intro. to Fluid Dyn. [4]	2009 (F)	28	4.3
OCN 590A	Estuarine & Coastal Fluid Dyn. [9] (Geyer)	2009 (Su)	13	4.9
OCN 506/497	Puget Sound Oceanography [3] Keister	2009 (W)	12+4UG	4.1
OCN 511/AMATH-ATM S 505	Intro. to Fluid Dyn. [4]	2007 (F)	29	3.7
OCN 589	Coastal & Estuarine Fluid Dyn. [9] Geyer	2006 (Su)	13	(NR)
OCN 512/ATM S 509	Geophysical Fluid Dynamics I [4]	2006 (W)	17	4.7
OCN 539	Bio-Physical Interactions [1] (Grünbaum)	2004 (W)	9	3.9
OCN 578	Estuarine & Coastal Fluid Dyn. [9] (Geyer)	2003 (Su)	12	(NR)
OCN 501	Estuarine Circ. & Mixing [3] (Gregg)	1999 (W)	7	4.23
OCN 501	Estuarine Circ. & Mixing [3] (Gregg)	1996 (F)	4	4.2
OCN 569	Dynamics of Estuaries [3] (Gregg)	1995 (F)	5	4.1
OCN 548	Dynamics of Estuaries [3] (Gregg)	1994 (F)	7	3.85

Undergraduate Research Advising

Bradley Bartos – Model-Observation Comparisons 2016-
 Amber Giaccone – Time series analysis 2016
 Campbell Glass - Analysis of Upwelling Indices 6/2013-2015
 Ross DiJulio - Tsunami Debris Modeling 2012-2013
 Cameron Sparr - Salish Sea Modeling, Spring 2010- (Mary Gates Fellowship 2011)
 Rachel Faye Lipsy - Chesapeake Bay Interpretive Buoy System, F2009-W2010
 Chelsea Funis - PoE Capstone 2009

Graduate Students Advised

Member, Committees for (in option) *current*

Elizabeth Brasseale	MS	2014-2016	
<u>Jake Steinberg</u>	<u>MS</u>	<u>2013-</u>	
Shuang Zhang	PhD	2012-2014	reading committee
Hayley Dosser	PhD	2010-2015	
Thomas Connolly	PhD	2007-2012	reading committee
Amy MacFadyen	PhD	2005-2008	reading committee
Jonathan Kellogg		2004-2007	
Eleanor Williams Frajka		2002-2007	

Amanda Babson	PhD	1999-2006	reading committee
Andrew Chiodi	MS	1998-2003	
Neil Banas	PhD	1998-2005	reading committee
Alana Althaus	MS	1998	
Sean Schenk	MS	1997-1999	
Leif Thomas	PhD	1997-2003	reading committee
Jonathan Lilly	MS	1996-1997	
Sim Larkin	PhD	1996-2000	reading committee
Liz Elliott		1996-1997	
Steve Goodson	MS	1996-1997	
Gabe Vecchi	MS	1996-1997	
Jen MacKinnon	PhD	1996-2002	
Xuemei Zhang		1995-1997	
Jody Klymak	PhD	1995-2001	reading committee
Fritz Stahr	PhD	1994-1998	reading committee

Member, Committees for (out of option or School)

<u>Katie Beaumont (MG&G)</u>		<u>2016-</u>	
<u>Isaiah Bolden (ChemOcn)</u>		<u>2016-</u>	
<u>Robin Banner (MG&G)</u>		<u>2015-</u>	
Anthony Poggioli (CEE)	PhD	2015	
Qiang Sun (U. Conn.)		2014-2015	
<u>Christine Stawitz (QERM) GSR</u>		<u>2014-</u>	
<u>Maggie McKeon (CEE)</u>		<u>2011-</u>	
<u>Emily Eidam (MG&G)</u>		<u>2012-</u>	
Zheng Liu (Atm Sci) GSR		2012	
Maria Aristizabal (Rutgers)	PhD	2011-2013	
Chris Jones (AMath) GSR	PhD	2011-2013	
Liz Tobin (BioO)	PhD	2010-2014	
Yeping Yuan (CEE)	PhD	2010-2012	
Eva Dusek (SAFS) GSR	PhD	2008-2012	
Joshua Jacobs (AMath) GSR		2008-2102	
Jihwan Kim (AMath) GSR	PhD	2008-2014	
Carey McGilliard (SAFS) GSR	PhD	2008-2012	
Kristen Lee (MG&G)	PhD	2007-2013	
Fred Goetz (SAFS) GSR	PhD	2006-2016	
Nate Hyde (OHSU, Oregon)	MS	2006-2007	reading committee
Kathryn Shamberger (Chem O)		2006-2011	
Mary Hunsicker (SAFS)	PhD	2005-2009	
Eli Gurarie (QERM) GSR	PhD	2005-2008	
D. Preston Martin (MG&G)		2005	
Bob Hawley (ESS) GSR		2004	
Tansy Clay (BioO)	PhD	2003-2008	
Nathalie Hamel (SAFS) GSR		2003-2009	

Susanne Menden-Deuer (BioO) PhD 2003-2004
 Beth Mullenbach (MG&G) PhD 2000-2002
 Cynthia Cudaback (Geophys.) PhD 1998
 Micaela Schnitzler (BioO) MS 1998
 Carol Lee (BioO) PhD 1998
 Jim Barnard (Mech. Eng.) PhD 1995-2000 reading committee

Chair, Committee for

Elizabeth Brasseale 2016-

Hally Stone 2014- MS

(Co-advisor with Banas starting 4/2015)

Chair, Committees for Graduate Students Advised in Past

Jamie Shutta MS 2010-2012 (NSF)
 Sally Warner MS, PhD 2005-2012 (NSF, ARCS)
 Ryan McCabe MS, PhD 2000-2007 (NSF, co-advised with Barb Hickey for PhD)
 Wayne Martin MS, PhD 1999-2008 (ONR & self supported)
 Tiangang Yu 1998-99
 Julian Douglass 1996-97
 Dawn Ring 1996

Postdoctoral Associates Advised Currently or in the past

Linghan Li 2016-

Sarah Giddings 2011-2012 (now faculty at UCSD)
 Dave Sutherland 2009-2010 (now faculty at Univ. of Oregon)
 Yonggang Liu 2006-2008 (now at Univ. S. Florida)
 Neil Banas 2005-2008 (now faculty at U. of Strathclyde, UK)
 Kate Edwards 2000-2002
 Geno Pawlak 1998-2000 (now faculty at UCSD)

Funded Research

“Physics Linking Shelf Circulation to Estuarine Inflow” NSF, \$577,956, 9/16/2016-9/15/2019 (9 mo.)

“Evaluating Local Impacts of Ocean Acidification on the U.S. West Coast” (Newton, Klinger, Siedlecki, MacCready, Deutsch) Wendy Schmidt foundation, \$150,000, 09/01/2016-08/31/2018 (2 mo.)

“Larval Rockfish Dispersal Modeling” NOAA-NMFS, \$30,000, 10/1/2016-9/30/2017 (0.5 mo.)

“Integration of US West Coast Operational Coastal and Ocean Models” (Alex Kurapov, OSU, PI) NOAA, total \$111,785, 9/1/2015-8/31/2018 (MacCready 2 mo.)

“Collaborative Research: Constraints on Interseismic Deformation Offshore Oregon from Calibrated Continuous Pressure Records” (William Wilcock UW PI), NSF, \$229,863, 3/1/2016-2/28/2018 (MacCready 2 mo.)

“Ocean Acidification Forecast Model”, (MacCready PI, CoPIs McCabe & Siedlecki, JISAO), \$150,000, from WA State through the Washington Ocean Acidification Center, 9/1/2015-6/30/2017. (MacCready 1 mo.).

“Linking Puget Sound primary production to stratification and atmospheric drivers” (MacCready PI, with Banas), \$62,516, from, Salish Sea Marine Survival Project. 2/1/2015-12/31/2017. (MacCready 2 mo.)

“Proposal for the Development of an Ocean Acidification Forecast Model” (Banas and Siedlecki, JISAO, CoPIs), \$308,749, from WA State through the Washington Ocean Acidification Center, 9/1/2013-6/30/2017. (MacCready 1 mo.).

Modeling Support, \$40k per year, from NOAA through NANOOS-IOOS. 6/1/2011-5/31/2017. (Darr 1-2 mo. per year).

Marine Spatial Planning, \$17k, from WA DNR. 11/1/2012-6/30/2013. (MacCready 1 month).

“Collaborative Project: Improving the Representation of Coastal and Estuarine Processes in Earth System Models” (Frank Bryan NCAR PI, with Mike Whitney at UConn) DOE, total \$354,322, 9/15/2011-9/14/2015. (MacCready 3 mo. + 1 postdoc).

“Transport and Fate of Nutrient and Pathogen Loadings into Nearshore Puget Sound: Consequences for Shellfish Growing Areas (Mary Ruckleshaus NOAA PI, with Banas, MacCready, others) EPA, UW subcontract is \$201,962, 9/1/2010-8/31/2012 (0.5 mo. for PM).

“PNWTOX: The Columbia River plume and the HABs in the Pacific Northwest: bioreactor, barrier, or conduit?” (B. Hickey, PI) NOAA award, NA09NOS4780180, my portion is \$365,722, 9/1/2009-8/31/2014 (6 mo.).

“Energetics of Estuarine & Coastal Flow,” NSF, \$463,635, 6/1/2009-5/31/2012 (7 mo.).

“Puget Sound Modeling” UW-PRISM, \$212,193, 6/1/2008-5/31/2010, (6 mo.)

“Collaborative Research: Direct estimation of topographic form drag from seafloor pressure measurement,” (Jim Moum, OSU, PI) NSF, my portion is \$332,637, 6/1/2008-5/31/2013 (5 mo.).

“Remote Sensing and Modeling of Coherent Structures in River and Estuarine Flows,” (Andy Jessup, APL, PI), ONR, my portion is \$76,818, 5/1/2005-4/30/2010, (5 mo.). (ended 6/2/2008 – used only 2 months)

“Collaborative Research: Coastal Form Drag and Eddies,” with Geno Pawlak (UH), NSF, my portion is \$396,084, 9/16/2004-9/15/2009, (13 mo.).

“A Pilot Coastal Observatory for the Estuaries and Shores of Oregon and Washington,” NOAA, \$131,998, 7/1/2004-2/28/2006, (6 mo.), Antonio Baptista (OHSU) PI.

"A Practical Educational Experience in Estuarine and Coastal Fluid Dynamics," (for FHL Summer School) NSF, \$19,791, 5/2003-2004. Funds for this class were also provided by the School of Oceanography, WHOI, and ONR.

"Collaborative Research: Productivity, Biogeochemical Transformations and Cross-Margin Transport in an Eastern Boundary Buoyant Plume Region" NSF CoOP program, my portion is \$1,074,823, ~6/2003-2009, (18 mo.), Hickey PI.

"Development of a Prototype Robotic Drifter Boat," UW Royalty Research Fund, \$27,264, 3/16/2002-3/14/2003, (0.25 mo.).

"Estuarine Adjustment and Sensitivity," NSF, \$256,513, 1/16/2002-2/28/2008, (15 mo.).

"Observations of Tidal Headland Eddies in Deep Water," with Geno Pawlak (UH), NSF, \$310,000, 3/1/01-2/29/04, (8 mo.).

"Ocean-Estuarine Coupling and Material Processing by Oysters", with David Armstrong and Curtis Roegner (UW Fisheries), Barbara Hickey (UW Oceanography), PM, Jennifer Ruesink (UW Zoology), Brett Dumbauld (WA DFW), and Jan Newton (WA DOE), Washington State Sea Grant, \$478,702, 1/1/01-12/31/03, (2.5 mo.).

"Natural variability of the physical environment and its effect on the marine ecosystem of Willapa Bay", with Barbara Hickey PI (UW Oceanography) and David Armstrong (UW Fisheries), Washington State Sea Grant, \$175,000, 6/1/99-11/30/00, (0.75 mo.).

"CISNet In Situ and Remote Monitoring of Productivity and Nutrient Cycles in Puget Sound", with Al Devol, Steve Emerson, and Mary Jane Perry (UW) and Jan Newton (WA Ecology), NASA & EPA/NOAA, \$581,876, 10/1/98-9/30/01 (0 mo.).

"Boundary Stress Over Extreme Topography", Mike Gregg PI, SECNAV/CNO Chair and ONR Scholar Program, \$1,800,000, 6/1/97-3/14/02 (27 mo).

"Boundary Stress Over Rough Topography", ONR, \$95,000, 10/1/97-9/30/99 (10 mo).

"Physical and Biological Controls of CO₂ Levels in the Southern Ocean: A Multi Tracer Approach", Paul Quay PI, NSF-JGOFS, \$200,000, 8/1/96-7/31/98 (4 mo).

"Meridional Transport Across the Antarctic Circumpolar Current", NSF, \$213,500, 7/1/96-6/30/99 (12 mo).

"Meridional Circulation in the Deep Caribbean Driven by an Overflow Plume", with Peter Rhines 0% PI, NSF, \$106,000, 6/1/94-11/30/96 (12 mo).

"Oceanic General Circulation: Combined Forcing by Stress and Buoyancy", with Peter Rhines PI, NSF, \$793,406, 6/15/93-6/14/96 (21 mo).

Bibliography

Refereed

MacCready, P., and S. N. Giddings (2016) The Mechanical Energy Budget of a Regional Ocean Model. *J. Phys. Oceanogr.*, 46, 2719–2733, doi:10.1175/JPO-D-16-0086.1.

Conway-Cranos L., P. Kiffney, N. Banas, M. Plummer, S. Naman, P. MacCready, J. Bucci, and M. Ruckelshaus (2015) Stable isotopes and oceanographic modeling reveal spatial and trophic connectivity among terrestrial, estuarine, and marine environments. *Mar. Ecol. Prog. Ser.*, 533, 15-28.

Siedlecki, S. A., N. S. Banas, K. A. Davis, S. Giddings, B. M. Hickey, P. MacCready, T. Connolly, and S. Geier (2015), Seasonal and interannual oxygen variability on the Washington and Oregon continental shelves, *J. Geophys. Res. Oceans*, 120, doi:10.1002/2014JC010254.

Banas, N. S., L. Conway-Cranos, D. A. Sutherland, P. MacCready, P. Kiffney, and M. Plummer (2015) Patterns of River Influence and Connectivity Among Subbasins of Puget Sound, with Application to Bacterial and Nutrient Loading. *Estuaries and Coasts*, 38(3), 735-753, DOI 10.1007/s12237-014-9853-y.

McCabe, R. M., B. M. Hickey, E. P. Dever, and P. MacCready (2015) Seasonal Cross-Shelf Flow Structure, Upwelling Relaxation, and the Alongshelf Pressure Gradient in the Northern California Current System. *J. Phys. Oceanogr.*, 45, 209-227, DOI: 10.1175/JPO-D-14-0025.1.

Davis, K. A., N. S. Banas, S. N. Giddings, S. A. Siedlecki, P. MacCready, E. J. Lessard, R. M. Kudela, and B. M. Hickey (2014), Estuary-enhanced upwelling of marine nutrients fuels coastal productivity in the U.S. Pacific Northwest. *J. Geophys. Res. Oceans*, 119, 8778–8799, doi:10.1002/2014JC010248.

Giddings, S. N., P. MacCready, B. M. Hickey, N. S. Banas, K. A. Davis, S. A. Siedlecki, V. L. Trainer, R. M. Kudela, N. A. Pelland, and T. P. Connolly (2014), Hindcasts of potential harmful

- algal bloom transport pathways on the Pacific Northwest coast. *J. Geophys. Res. Oceans*, 119, doi:10.1002/2013JC009622.
- Warner, S. J., and P. MacCready (2014), The dynamics of pressure and form drag on a sloping headland: Internal waves versus eddies, *J. Geophys. Res. Oceans*, 119, doi:10.1002/2013JC009757.
- Alford, M. H., and P. MacCready (2014), Flow and mixing in Juan de Fuca Canyon, Washington. *Geophys. Res. Lett.*, 41, doi:10.1002/2013GL058967.
- Geyer, W.R., and P. MacCready (2014) The Estuarine Circulation. *Annu. Rev. Fluid Mech.*, 46:175–97, 10.1146/annurev-fluid-010313-141302.
- Warner, S. J., P. MacCready, J. N. Moum, and J. D. Nash (2013) Measurement of tidal form drag using sea floor pressure sensors. *J. Phys. Oceanogr.*, 43, 1150-1172.
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