

STEFAN A. TALKE

Associate Professor
Department of Civil and Environmental Engineering
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A. Education

PhD.	2005	Civil and Environmental Engr.	University of California, Berkeley (CA)
M.S.	2001	Civil and Environmental Engr.	University of California, Berkeley (CA)
B.S.	1996	Mechanical Engineering	University of California, Berkeley (CA)

B. Employment

2019-Present *Associate Professor*, Department of Civil & Environmental Engineering
California Polytechnic State University, San Luis Obispo (CA)

2018-2019 *Associate Professor*, Department of Civil & Environmental Engineering
Portland State University (Portland, OR)

2012-2018 *Assistant Professor*, Department of Civil & Environmental Engineering
Portland State University (Portland, OR)

2010-2012 *Senior Research Associate*, Department of Civil & Environmental Engineering
Portland State University (Portland, OR)

2007-2010 *Research Associate*, Department of Civil & Environmental Engineering
University of Washington (Seattle, WA)

2005-2007 *Post-Doctoral Scholar*; Institute for Marine and Atmospheric Research (IMAU),
University of Utrecht, (Utrecht, The Netherlands)

2000-2004 *Graduate Research Associate*; Department of Civil & Environmental Engineering
University of California, Berkeley (Berkeley, CA)

2000 *Intern*, Montgomery Watson (Walnut Creek, CA)

1997-1999 *Software Quality Assurance Engineer*, Parametric Tech. Corp. (San Jose, CA)

1996 *Intern*, Phase Metrics (San Diego, CA)

1994 *Intern*, Bodensee Geraete Technik (Ueberlingen, Germany)

C. Consulting Experience

2014-2019 Consultant, Lower Passaic River Superfund Project. Reviewed RI/FS and other documents and analyzed long-term system changes (Tierra Solutions, Glenn Springs Holdings, and Occidental Petroleum)

2008-2010 Consultant, Stockton Channel (CA) Superfund project; Brown & Winters Environmental Law (Carlsbad, CA). Reviewed documents and analyzed long-term change.

D. Dissertation

An Investigation on the Hydrodynamics and Sediment Dynamics on an Intertidal Mudflat in Central San Francisco Bay, 5/2005; Advisor: M.T. Stacey

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E. Honors, Grants, and Fellowships

1. AWARDS & HONORS

2019	Pritchard award (Chant, Sommerfeld, & Talke 2018 paper); CERF
2018	Outstanding Reviewer Award, American Geophysical Union
2015	CAREER Award, National Science Foundation
2014	Sigma Xi Outstanding Research Award, Portland Chapter
2013	Outstanding Reviewer Award, Estuaries and Coasts,
2012	Young Investigator Award, Office of Naval Research
1998	Outstanding Contribution Award, Parametric Technology Corporation

2. FELLOWSHIPS AND STIPENDS

2016	ExCEED Teaching Fellow: American Society of Civil Engineers (ASCE), \$1850
2012	Portland State Travel Grant (\$1000)
2011	Travel money to attend Tsunami Workshop at OR State (H. Yeh, organizer)
1999-2000	Department of Civil and Environmental Engineering Scholarship, UC Berkeley, \$5000 +tuition reimbursement

3. SPONSORED RESEARCH

- [17] **\$328,606** (Talke portion) *PREEVENTS Track 2: Collaborative Research: Geomorphic Versus Climatic Drivers of Changing Coastal Flood Risk.* PIs P.M. Orton, S.A. Talke, J. Booth & T Wahl. Funded by National Science Foundation. Awarded June 2019
- [16] **\$200,000** *Estuary Attributions: Anthropogenic Impacts on Ecosystems of the Lower Columbia River and Estuary.* PIs D.A. Jay, S.A. Talke, & J. Jurisa. Funded by Bonneville Power Administration thru Pacific Northwest National Labs. Awarded Nov. 2018
- [15] **\$150,000** *Phase 1 Clackamas Basin Resilience Study.* PI M. Nielsun-Pincus, co-PI's H. Chang, A. Holtz, P. Loikith, H. Moradkhani, **S.A. Talke**. ~\$150,000 total, \$21,218 to Talke. Institute for Sustainable Solutions, Portland State University. Awarded Sept. 2017
- [14] **\$30,000** *Informing Hydropower Investment and Operational Decisions in the Face of a Changing Climate.* PI DA Jay, co-PI **S.A. Talke** sub-contract thru Pacific Northwest National Laboratory (H. Diefenderfer), from Department of Energy. Awarded Sept. 2017.
- [13] **\$299,274** *Have large-scale river plumes and coastal circulation patterns been fundamentally altered by historic estuary outlet modifications?* PI J. Jurisa, co-PIs D.A. Jay and **S.A. Talke**, National Science Foundation, Mar. 2017-Feb. 2020.
- [12] **\$358,975** *Planning for the Future by Understanding the Past* **PI S.A. Talke**, co-PI DA Jay. US Army Corps, Awarded Aug. 2016.
- [11] **\$99,678** *Climate Change and Flood Risk*, City of Portland & Institute for Sustainable Solutions; PI Heejun Chang, **co-PI S.A. Talke**; Awarded Aug. 2015.
- [10] **\$499,656** *CAREER: Modeling 19th century estuaries to address 21st century problems* National Science Foundation, **PI S.A. Talke**. Awarded March 2015.

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- [9] **\$546,632** *LPR and Newark Bay sediment and contaminant dynamics*. Tierra Solutions. PI DA Jay, co-PI **S.A. Talke (40)**. March 2015-June 2016.
- [8] **\$25,000** *Recovery of Historical Sea-Level Measurements for Boston*, MA Sea-Grant; PI A. Kemp, Tufts University, co-PI **S.A. Talke** (\$18,841 to PSU); 2015-2016
- [7] **\$372,397** *Charleston, Astoria, and Norfolk tide data recovery and analysis, 1844-present* PI **S.A. Talke**, co-PI DA Jay. US Army Corps, Oct. 2014-Sept. 2017.
- [6] **\$7,500** *Hurricane Sandy: Could it have been worse?*, Portland State Faculty Enhancement Grant, PI **S.A. Talke** (Awarded Feb. 2013)
- [5] **\$345,507** Young Investigator Award: *Improving estuarine transport models using satellite measurements* Office of Naval Research, PI **S.A. Talke**, Dec. 2012-Mar. 2016.
- [4] **\$143,810** *Shallow Turbulence in Estuaries* Office of Naval Research, PI. **S.A. Talke**, co-PIs E. Zaron & C.C. Chickadel, Nov. 2011 to Mar. 2014.
- [3] **\$93,848** *Nineteenth Century US West Coast Sea Level and Tidal Properties*, National Science Foundation. PI. **S.A. Talke**, co-PI. D.A. Jay, Mar. 2012-Feb. 2014.
- [12] **\$7,000** *Faculty Enhancement Grant—Archival Research and Recovery of Astoria data*, Portland State. PI. **S.A. Talke**, 2011
- [1] **\$5,000** *Research Stimulus Grant*, Portland State. PI. **S.A. Talke**, 2011

F. Refereed Publications

1. JOURNAL ARTICLES

Graduate/undergraduate students underlined.

- [40] **Talke, S.A.**, A. Mahedy, D.A. Jay, P. Lau, C. Hilley, A. Hudson (2019) *submitted*. Sea level, tidal and river flow trends in the Lower Columbia River Estuary, 1853-present, submitted to *Journal of Geophysical Research-Oceans*
- [39] Haigh, I.D., M. D. Pickering, J. A. M. Green, B. K. Arbic, A. Arns, S. Dangendorf, D. Hill, K. Horsburgh, T. Howard, D. Idier, D. A. Jay, S. B. Lee, M. Müller, M. Schindelegger, **S.A. Talke**, S.B. Wilmes, P. L. Woodworth (2018). The Tides They Are a'Changin *Manuscript re-submitted to Annual Review of Geophysics, July 2019*
- [38] Famalkhalili, R., **S.A. Talke**, D.A. Jay (2019) *submitted*. An analytical model of tides and storm surge in weakly convergent estuaries: the effect of changing conditions. Returned for revisions from *Journal of Geophysical Research, May 2019*
- [37] **Talke, S.A** & D.A. Jay (2020). Changing tides: The role of natural and anthropogenic factors. *Annual Review of Marine Science*, <https://doi.org/10.1146/annurev-marine-010419-010727>
- [36] Ray, R., & **S.A Talke** (2019). Nineteenth-Century Tides in the Gulf of Maine and implications for secular trends. In press, *Journal of Geophysical Research* <https://agupubs.onlinelibrary.wiley.com/doi/abs/10.1029/2019JC015277>.
- [35] Helaire, L.T., **S.A. Talke**, D. A. Jay and D. Mahedy (2019), Historical changes in Lower Columbia River and Estuary Floods and Tides. In press, *Journal of Geophysical Research*, <https://doi.org/10.1029/2019JC015055>

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- [34] P. Gurumurthy, P. Orton, N. Georgas, **S. A. Talke**, and J. Booth (2019) Mechanics and historical evolution of sea level blowouts in New York Harbor. 7(5), 160, doi:<https://doi.org/10.3390/jmse7050160>.
- [33] Al-Murib, M., S. Wells, **S.A. Talke**, (2019). Integrating Landsat TM/ETM+ and Numerical Modeling to Estimate Water Temperature in the Tigris River under Future Climate and Management Scenarios. *Water* 11(5):892 doi: 10.3390/w11050892
- [32] Ralston, D.K., **S.A. Talke**, W. R. Geyer, H. Al'Zubadaei, & C K. Sommerfield (2019). Bigger tides, less flooding: Effects of dredging on water level in the Hudson River estuary. *Journal of Geophysical Research*, 124(1), doi: 10.1029/2018JC014313
- [31] **Talke, S.A.**, A. Kemp, & J. Woodruff (2018). Relative sea level, tides, and extreme water levels in Boston (MA) from 1825 to 2018. *Journal of Geophysical Research* 123(6), doi.org/10.1029/2017JC013645
- [30] Chant, R.J., C.K. Sommerfield, **S.A. Talke** (2018). Impact of channel deepening on tidal and gravitational circulation in a highly engineered estuarine basin. *Estuaries and Coasts* 41(6), p. 1587-1600 <https://doi.org/10.1007/s12237-018-0379-6>
- [29] Branch, R., A. Horner-Devine, C. Akan, C. Chickadel, G. Farquharson, A. Hudson, **S.A. Talke**, J. Thomson, and A. Jessup (2018). Airborne Lidar measurements and model simulations of tides, waves, and surface slope at the mouth of the Columbia River. *IEEE Transactions on Geoscience and Remote Sensing* DOI: 10.1109/TGRS.2018.2847561 Volume PP Issue 99 p 1-11.
- [28] Devlin, A.T., D.A. Jay, **S. A. Talke**, E. D. Zaron, and J. Pan (2018). Seasonality of Tides in Southeast Asian Waters. *Journal of Physical Oceanography* 48 (5), 1169-1190 <https://doi.org/10.1175/JPO-D-17-0119.1>
- [27] Devlin, A.T., D.A. Jay, E. D. Zaron, **S. A. Talke**, J. Pan, H. Lin (2017). Coupling of sea level and tidal range changes with implications for future water levels. *Nature: Scientific Reports* 7 (1), 17021, DOI:10.1038/s41598-017-17056-z
- [26] Devlin, A.T., D.A. Jay, **S. A. Talke**, E. D. Zaron, and J. Pan (2017). Tidal variability related to sea level variability in the Pacific Ocean. *Journal of Geophysical Research*, 122 (11), 8445-8463, doi/10.1002/2017JC013165
- [25] Hudson, A.S., **S. A. Talke**, R. Branch, C. Chickadel, G. Farquharson, A. Jessup (2017). Remote measurements of tides and river slope using airborne lidar instrument, *Journal of Atmospheric and Oceanic Technology*, 34 (4), 897-904, <http://dx.doi.org/10.1175/JTECH-D-16-0197.1>
- [24] Arns, A., S. Dangendorf, J. Jensen, J. Bender, **S. A. Talke**, and C. Pattiaratchi (2017). Sea-level rise induced amplification of coastal protection design heights. *Nature: Scientific Reports*, DOI: 10.1038/srep40171
- [23] Kemp, A., T.D. Hill, C. Bernhardt, C. H. Vane, N. Cahill, P. M. Orton, **S.A. Talke**, A.C. Parnell, K. Sanborn, and E. K. Hartig (2017). Relative Sea-Level Trends in New York City During the Past ~1500 years. *The Holocene*, doi/full/10.1177/0959683616683263
- [22] Hudson, A., **Talke, S.A.**, and D.A. Jay (2017). Using satellite observations to characterize the response of estuary turbidity maxima to external forcing. *Estuaries and Coasts* 39(5) DOI 10.1007/s12237-016-0164-3
- [21] Orton, P.M., T.M. Hall, **S.A. Talke**, N. Georgas, A.F. Blumberg, S. Vinogradov (2016). A Validated Tropical-Extratropical Flood Hazard Assessment for New York Harbor. *Journal of Geophysical Research*, DOI: 10.1002/2016JC011679

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- [20] Familkhalili, R., and **S. A. Talke** (2016). The Effect of Channel Deepening on Storm Surge: A Case Study of Wilmington, NC; *Geophysical Research Letters*, DOI 10.1002/2016GL069494
- [19] Moftakhari, H.R., D.A. Jay, **S.A. Talke** (2016). Estimating river discharge using multiple-tide gages distributed along a channel, *Journal of Geophysical Research., Oceans*, 121, doi:10.1002/2015JC010983.
- [18] Moftakhari, H.R., D.A. Jay, **S.A. Talke**, D.H. Schoellhamer (2015). Estimation of historic flows and sediment loads to San Francisco Bay, 1849-2011, *Journal of Hydrology*, doi:10.1016/j.jhydrol.2015.08.043
- [17] Orton, P. M., **S. A. Talke**, D. A. Jay, L. Yin, A. F. Blumberg, N. Georgas, H. Zhao, H. J. Roberts, and K. MacManus (2015). Channel Shallowing as Mitigation of Coastal Flooding, *Journal of Marine Science and Engineering*, 3(3), 654-673, DOI: 10.3390/jmse3030654
- [16] **Talke, S.A.**, P. Orton, D.A. Jay (2014). Increasing Storm Tides in New York Harbor, 1844-2013 *Geophysical Research Letters* 41(9), p3149–3155, DOI: 10.1002/2014GL059574
- [15] Devlin, A., D.A. Jay, **S.A. Talke**, E.D. Zaron (2014). Tidal trends associated with anomalous sea level rise in the western Pacific Ocean. *Ocean Dynamics* 64:1093-1120 DOI 10.1007/s10236-014-0741-6
- [14] de Jonge, V.N. de, H.M. Schuttelaars, J.M.M.van Beusekom, **S.A.Talke**, H.E. de Swart (2014). The influence of channel deepening on estuarine turbidity dynamics, as exemplified by the Ems estuary. *Estuary, Coastal and Shelf Science* 139, p. 46-59.
- [13] **Talke, S.A** & D.A. Jay (2013). Nineteenth Century North American and Pacific Tides: Lost or just forgotten? *Journal of Coastal Research* 29(6a), p. 118- 127.
- [12] **Talke, S.A.**, A.R. Horner-Devine, C.C. Chickadel, and A. T. Jessup (2013). Turbulent kinetic energy and coherent structures in a tidal river. *Journal of Geophysical Research.* 118(12), p. 6965–6981, DOI: 10.1002/2012JC008103
- [11] Moftakahri, H.R., D.A. Jay, **S.A. Talke**, T. Kulkulka, P. D. Bromirski (2013). A novel approach to flow estimation in tidal rivers, *Water Resources Research.* 49, 1-16, doi:10.1002/wrcr.20363
- [10] Yeh, H., E. Tolkova, D. Jay, **S.Talke**, H. Fritz (2012). Tsunami Hydrodynamics in the Columbia River, *Journal of Disaster Research.* Vol. 7(5).
- [9] Chickadel, C.C., **Talke, S.A.**, A.R. Horner-Devine, and A.T. Jessup (2011). Infrared based measurements of velocity, turbulent kinetic energy and dissipation at the water surface in a tidal river. *Geoscience and Remote Sensing Letters*, GRSL-00530-2010.R1
- [8] **Talke, S.A.**, A.R. Horner-Devine, C.C. Chickadel (2010). Mixing layer dynamics in separated flow over an estuarine sill with variable stratification, *Journal of Geophysical Research* Vol.. 115, C09004, doi:10.1029/2009JC005467
- [7] Chernetsky, A.S., H.M.Schuttelaars, & **S.A. Talke** (2010). The effect of tidal asymmetry and temporal settling lag on sediment trapping in tidal estuaries. *Ocean Dynamics* 60, 1219-1241, doi: 10.1007/s10236-010-0329-8.
- [6] **Talke, S.A**, H.E. De Swart & H.M.Schuttelaars (2009). Feedback between residual circulation and sediment distribution in highly turbid estuaries: an analytical model. *Continental Shelf Research*, 29(1) p. 119-135. doi:10.1016/j.csr.2007.09.002
- [5] **Talke, S.A.**, H.E. de Swart, & V.N. de Jonge (2009). An idealized model and systematic process study of oxygen depletion in highly turbid estuaries. *Estuaries and Coasts*, 32 (4) p. 602-620. DOI 10.1007/s12237-009-9171-y.

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- [4] Chickadel, C. C., A. R. Horner-Devine, **S. A. Talke**, and A. T. Jessup (2009). Vertical boil propagation from a submerged estuarine sill, *Geophysical Research Letters*, 36, L10601, doi:10.1029/2009GL0372782010.
- [3] de Swart, H.E., H.M. Schuttelaars, & **S.A. Talke** (2009). Phytoplankton growth in turbid estuaries: a simple model. *Continental Shelf Research*, 29(1), p. 136-147, doi:10.1016/j.csr.2007.09.006
- [2] **Talke, S.A.**, & M.T. Stacey (2008). Suspended Sediment Fluxes at an intertidal flat: Shifting Influence of wave, wind, tidal, and freshwater forcing. *Continental Shelf Research* 28(6), p. 710-725, doi:10.1016/j.csr.2007.12.003
- [1] **Talke, S.A.**, & M.T. Stacey (2003). The influence of oceanic swell on flows over an estuarine intertidal mudflat in San Francisco Bay, *Estuarine, Coastal, and Shelf Science* 58, 541-554.

2. BOOK CHAPTERS

- [2] Jay, D.A., **S.A. Talke**, A. Hudson, and M. Twardowski (2015). Estuarine turbidity maxima revisited: Instrumental approaches, remote sensing, modeling studies, and new directions. Ch. 2 in *Fluvial-Tidal Sedimentology*, Vol. 68 of *Developments in Sedimentology*, Editors: P.J. Ashworth, J.L. Best, and D. Parsons, p. 49-109.
- [1] A.T. Jessup, Chickadel, C.C., **Talke, S.A.**, and A.R. Horner-Devine (2013). *COHSTREX: Coherent Structures in Rivers and Estuaries Experiment*. Ch. 14 in Coherent Flow Structures at the Earth's Surface (Editors J.G. Venditti, J.L. Best, M. Church, J.R. Hardy), John Wiley and Sons, New York.

3. RESEARCH REPORTS

- [4] **Talke, S.A.** & D.A. Jay (2017). Archival Water-Level Measurements: Recovering Historical Data to Help Design for the Future. US Army Corps of Engineers: *Civil Works Technical Series, Report CWTS-02, 49p*.
- [3] Chang, H., S.Y. Cho, L. Helaire, **S.A. Talke**, and H. Duong (2017). Climate change and flood risk: Toward a flood resilient Portland. Report submitted to City of Portland, Aug. 2017.
- [2] **Talke, S.A.** & H.E. de Swart (2011). Circulation, sediment concentration, and oxygen depletion in the tidal Ems River. In: *Aspects of coastal research in contribution to LOICZ in the Netherlands and Flanders (2002-2010)*, Eds. C. Heip and R. Laane, LOICZ R&S Report No. 38
- [1] **Talke, S.A.** & H.E. de Swart (2006). Hydrodynamics and Morphology in the Ems/Dollard Estuary: Review of Models, Measurements, Scientific Literature, and the Effects of Changing Conditions. *IMAU Report R-01-06, 78 pp*.

4. CONFERENCE PROCEEDINGS

- [3] Helaire, L., Heejun Chang, H., S.A. Talke, H. Duong, S.Y. Cho (2017). Assessing Urban flood Risk in a Changing Climate. Proceedings of International Geographical Union (IGU) conference, Beijing, Aug. 2017.
- [2] Al-Murib M., S. Wells, & **S.A. Talke** (2017). Estimation of Surface Water Temperature of the Tigris River System in Iraq. Proceedings of *World Environmental and Water Resources Congress*, Sacramento, CA, May 2017.

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- [1] Talke, S.A., H.E. de Swart, & H.M. Schuttelaars (2008). An analytical model of the equilibrium distribution of suspended sediment in an estuary. In *Dohmen-Janssen and Hulscher, eds: River, Coastal and Estuarine Morphodynamics 2008*, p. 403-411, London, Taylor & Francis.

5. MANUSCRIPTS IN PREPARATION FOR SUBMISSION TO JOURNAL (AVAILABLE ON REQUEST)

- [1] Talke, S.A., R. Familkhalili, & D.A. Jay (2019) *in prep.* The influence of channel deepening on extreme water levels: case study of the St Johns River, FL. To be submitted to *Water Resources Research*
- [2] Talke, S.A. & D.A. Jay (2019) *in prep.* Secular Changes in Willamette River Water Temperature, 1850-present: the effects of climate change and anthropogenic development. To be submitted to *Water Resources Research*.
- [3] Jay, D.A., M. McKeon, S.A. Talke, J. Jurisa & W. Templeton, 2019 *in prep.* Suspended Sediment Transport in the Lower Passaic River Estuary: A Test of the Interrupted Transport Hypothesis
- [4] Talke, S.A. & D.A. Jay, 2019 *in prep.* The return period of bed stress in convergent estuaries. To be submitted to *Coastal Engineering*.

G. References

Available upon request.

H. Media Outreach

1. Media and Press Coverage

- [18] “As Port Cities Dredge Deeper to Accommodate Growing Cargo Ships, the Risk of Inland Flooding May Rise.” *Smithsonian Magazine*, 30 Nov. 2018, <https://www.smithsonianmag.com/science-nature/port-cities-dredge-deeper-accomodate-cargo-ships-risk-flooding-rise-180970928/>
- [17] “Oil and Gas Flow to Texas Coast Spawns Building, Tensions.” *Texas Tribune (and others)*, 29 Nov. 2018, <https://www.texastribune.org/2018/11/29/oil-and-gas-surge-texas-coastline-triggers-building-boom-tensions/>
- [16] “As the Ocean Creeps In.” *The Florida Times-Union*, May, 2018, <http://gatehouse-news.com/riverproject/home/site/jacksonville.com>
- [15] “Tidal Flooding Outlook and How the Moon Plays a Role.” *WCAI NPR*, 11 June 2018, <http://www.capeandislands.org/post/tidal-flooding-outlook-and-how-moon-plays-role#stream/0>
- [14] “Reconstructing America’s longest water level and instrumented flood record in Boston.” *American Geophysical Union GeoSpace*, 1 June 2018, <https://blogs.agu.org/geospace/2018/06/01/reconstructing-americas-longest-water-level-and-instrumented-flood-record-in-boston/>
- [13] “Rising Seas Made the Latest Storm Surges More Potent, and Newly Discovered Records Help Prove It.” *The Boston Globe*, 8 March 2018, <https://www.bostonglobe.com/metro/2018/03/07/trove-documents-shows-historical-ferocity-recent-storms/keamav0oVsck3j78F0J0mO/story.html>

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- [12] “Attack of the Extreme Floods: As the Oceans Rise, Researchers Aim to Forecast Where Severe Storms will Trigger the Worst Flooding.” *Nature*, 7 March 2018, <https://www.nature.com/articles/d41586-018-02745-0>
- [11] “Sensing Our Planet, NASA Earth Science Research Features, 2016: Time and Tide.” National Aeronautics and Space Administration, 2016, https://cdn.earthdata.nasa.gov/conduit/upload/5911/NASA_SOP_2016.pdf
- [10] “Dredging Brings Severe Flood Risk to Wilmington, N.C.” *Climate Central*, 1 Sept. 2016, <http://www.climatecentral.org/news/dredging-brings-severe-flood-risk-to-wilmington-20659>
- [9] “Lost Tides”, *Portland State Research Quarterly*, 2015: <https://www.pdx.edu/research/profile/lost-tides>
- [8] “The Tech Challenges of Hurricane Season.” NPR’s Marketplace, 27 May 2014, <https://www.marketplace.org/2014/05/27/sustainability/tech-challenges-hurricane-season>
- [7] “How We’ll Protect NYC From Flooding.” *Popular Mechanics*, 1 May 2014, <https://www.popularmechanics.com/technology/infrastructure/a10578/how-well-protect-nyc-from-flooding-16751249/>
- [6] “For New York, The ‘10-Year Storm’ Isn’t What It Used To Be.” NPR, 25 April 2014, <https://www.npr.org/sections/thetwo-way/2014/04/25/306889732/for-new-york-the-10-year-storm-isnt-what-it-used-to-be>
- [5] “Odds of NYC Flooding During a Storm Up 20-Fold.” *National Geographic*, 24 April 2014, <https://news.nationalgeographic.com/news/2014/04/140424-new-york-flood-storm-surges-sea-level-rise-science/>
- [4] “Under Water: Risk of New York City Coastal Flooding Has Surged by Factor of 20, Study Says.” *Washington Post*, 23 April 2014, <https://www.washingtonpost.com/news/capital-weather-gang/wp/2014/04/23/risk-of-new-york-city-coastal-flooding-has-surged-by-factor-of-20-says-study>
- [3] “New York City Flood Risk Has Risen 20-Fold Since Late 1800s, Study Says.” *Mashable*, 23 April 2014, <https://mashable.com/2014/04/23/nyc-flood-risk/#v6jQ89qW7gqn>
- [2] “Study: Manhattan Seawall Overtopping 20-times More Likely Portland State University Professor Finds.” *The Oregonian*, 23 April 2014, https://www.oregonlive.com/weather/index.ssf/2014/04/study_manhattan_seawall_overt.html
- [1] “Odds of storm waters overflowing Manhattan seawall up 20-fold, new study shows”. *American Geophysical Union*, 23-April 2014. <https://news.agu.org/press-release/odds-of-storm-waters-overflowing-manhattan-seawall-up-20-fold-new-study-shows/>

2. Podcasts

- [3] “Secret Lives of Tide Gauge Operators” *American Geophysical Union*, Third Pod From the Sun, 1 June 2018, <https://thirdpodfromthesun.com/2018/06/01/e6-the-secret-lives-of-tide-gauge-operators/>
- [2] “NYC Will Flood.” *Radio Ecoshock*, 2014, <https://soundcloud.com/radioecoshock/stefan-talke-nyc-will-flood>
- [1] “Increasing Storm Tides in New York Harbor” *American Geophysical Union* https://www.youtube.com/watch?v=gE_HIodE74E

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3. Contributions to Popular Books on Science

- Storm Surge: Hurricane Sandy, Our Changing Climate, and Extreme Weather of the Past and Future, by Adam Sobel (Professor, Columbia University), Harper Collins.
 - Contribution: Figure on historical extreme surge events in New York
- Tides: The science and spirit of the Ocean, by Jonathan White, Trinity University Press.
Contribution: Discussion with author about tides, storm surge, and sea-level rise effects

I. Teaching, Mentoring, and Curricular Achievements

CLASSES TAUGHT (*CLASSES DEVELOPED)

- Fluid Mechanics (Portland State),
- Environmental Physics (Portland State),
- Advanced Fluid Mechanics* (Portland State),
- Remote Sensing in Coastal and Inland Waters* (Portland State)
- Extreme events in Coastal and Inland Regions* (Portland State)

PROFESSIONAL DEVELOPMENT

- ExCEED Teaching Workshop. American Society of Civil Engineers, July 2016, West Point, NY.

INDIVIDUAL STUDENT ADVISING

PhD Students

- Austin Hudson, PhD candidate
 - Topic: *Remote Sensing and analytical modeling of turbidity maxima*
 - 2 papers published, co-author on book chapter
 - Awards: 2015 Maseeh Scholarship (tuition reimbursement + \$10k)
- Lumas T. Helaire, PhD candidate
 - Topic: *Effect of bathymetric change, sea-level rise, and altered hydrology on flood dynamics in the Columbia River*
 - 1 conference paper, co-author on report to City of Portland, 2 manuscripts in preparation
- Ramin Familkhalili, PhD awarded 2019
 - Topic: *Analytical and Numerical modeling of Long term changes to storm surge risk due to channel deepening, widening, and streamlining*
 - 1 paper published (Geophysical Research Letters), 1 in preparation
- Aqeel Al Bahadily, PhD candidate
 - Topic: *Effect of hydrological and bathymetric change in Columbia River on salinity intrusion and water temperature*

PhD (Awarded)

- Hamed Moftakhari, 2011-2015 (Chair D.A. Jay; co-chair **S.A. Talke**)
 - PhD, 2015. Currently post-doc at UC Irvine
 - Thesis Topic: *Hindcasting river flow and sediment transport into San Francisco Bay, using the 1854-present tide gauge and archival river stage measurements.*
 - Three papers published.

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- Adam Devlin, 2010-2016 (Chair D.A. Jay; co-advised by E. Zaron and S.A. Talke)
 - Currently post-doc at University of Hong-Kong
 - Thesis topic: *Correlations between sea-level fluctuations and tide fluctuations, on inter-annual and seasonal time scales.*
 - Four papers published

Masters of Science (Current and Awarded)

- Jon Rapaport (current)
 - Thesis Topic: *Modeling changes in shallow water habitat in the Columbia River estuary, 19th century to present*
- Matt Pruett (current)
 - Thesis Topic: *Remote Sensing of water levels and tides*
- Austin Hudson, 2014.
 - Thesis: *Applications of Remote Sensing to the Study of Estuarine Physics: Suspended Sediment Dynamics in the Columbia River Estuary.* http://pdxscholar.library.pdx.edu/open_access_etds/2093/
- Lumas Helaire, 2016.
 - Thesis: *Modeling of Historic Columbia River Flood Impacts Based on Delft 3D Simulations.* http://pdxscholar.library.pdx.edu/open_access_etds/3206/

Undergraduate Honors Thesis (Awarded)

- Corina Overman (2017)
 - Thesis Topic: *A Statistical Investigation of Lower Columbia River Water Temperature, 1915-2003* http://pdxscholar.library.pdx.edu/cengin_honorstheses/8/

Dissertation Committees

- 9 PhD dissertation committees
- 3 Masters of Science Committees
- Multiple Proposal committees

Post-Doctoral Scholars Mentored

2015-2018 Joe Jurisa (Senior Research Associate, Portland State)

2015-2016 Saeed Moghmi (Senior Research Associate, Portland State)

J. Service

STEM OUTREACH

- 2014-2019—Mentored 23 Upward Bound High School Students over 6 summers. This program mentors disadvantaged and under-represented high school students, and places

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them in college labs over the summer for paid internships. Students have typically digitized and QA'd historic tide records, while learning about tides and sea-level rise.

<https://www.pdx.edu/ubets/upward-boundets-home>

- 2014-2015, 2017—Mentored 4 High School students from Saint Mary's Academy, an all-girls college-prep school in Portland (OR). As part of their senior capstone project for their science in practice course, students are placed in local labs. Mentors help with designing project and provide input for the final presentation and poster. Students have typically digitized and QA'd historic tide records, while learning about tides and sea-level rise. Teacher: Maureen Daschel.
- 2017-2018—Mentored four High School student from the Saturday Academy over the summer. Sewell's internship involved digitizing and QA'ing hourly records from Pulpit Harbor, Maine, from 1870-1888, for the purpose of characterizing sea-level.
- 2015-2017 Embedded into our lab and mentored 3 local High School Science Teachers during the summers, for the purpose of developing curriculum that meets Common Core and Next Generation Science Standards. Funded by my NSF CAREER Grant, the teachers developed primary-source curriculum that included our research into turbidity patterns, historic tides, and sea-level, and other local issues including reservoir management, climate change, and environmental pollution. Teachers: Scott Guthrie (Wilsonville); Dave Burmester (Portland); and N. Baisely (Astoria).

GOVERNANCE/SERVICE FOR THE UNIVERSITY, COLLEGE, DEPARTMENT

- Member of Electrical Engineering search committee, 2016-2017 academic year. Assisted in the hiring of a faculty line in Environmental Sensing.
- NSF CAREER Grant Workshop—Portland State University, Jan 2016. Organized by K. Wriggle and L. Zurk. Attended by ~20 PSU assistant professors interested in applying to the grant. Contributed to Question/Answer session and informal gathering thereafter.
- ACITAC University-wide committee (2013-2016). Monthly meeting to discuss computer learning, website, and database issues affecting university.
- Civil & Environmental Engineering Scholarship committee, 2013-2017. Represented Department at college level in 2013-2014 and 2016-2017 academic year.
- Civil & Environmental Engineering Curriculum committee, 2014-2017. Represented Department at college level in 2014-2015 academic year
- Civil & Environmental Engineering Graduate Admission committee, 2013-2017
- Participated in Student Open House Outreach, 2013-2017
- Attended multiple dinners for various faculty searches, 2015-2017
- Made Presentation and met with CEE Advisory board, 2014

PROFESSIONAL SERVICE

- Session Chair, CERF 2015 and CERF 2009 (Coastal and Estuarine Research Foundation biennial meeting); co-chair of session at joint ASLO/Ocean Sciences meeting, Feb. 2016 & Feb. 2018;

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contributed to organization of 69th Annual Meeting of The APS Division of Fluid Dynamics, Portland OR in Nov. 2016.

- Committee Member, Pritchard Award in coastal and estuarine physical oceanography; Coastal and Estuarine Research Foundation (CERF), 2017.
- Reviewer of manuscripts for: *Journal of Geophysical Research*; *PLOS-1*; *Estuaries and Coasts*; *Limnology and Oceanography Methods*; *Estuarine, Coastal, and Shelf Science*; *Journal of Marine Systems*; *Continental Shelf Research*; *Environmental Fluid Mechanics*; *Water Resources Research*; *Ocean and Coastal Management*; *Ocean Dynamics*; and *PNAS*
- Reviewer of proposals for: *National Science Foundation*, *Research Foundation Flanders*, *Sea Grant*
- Served on NSF panel, May 2017. (Improving Undergraduate STEM Education Panel Meeting: (March 13-14, 2017).
- Reviewer of 4th *New York Panel on Climate Change (NPCC) Report*
- Member of American Geophysical Union (AGU), CERF (Coastal and Estuarine Research Foundation), American Physical Society (APS), and ASCE (American Society of Civil Engineers)

K. Technical Presentations

1. INVITED PRESENTATIONS AND SEMINARS

- [37] **Talke, S.A.** (2019), *Floods, Tides and Benchmarks: Reconstructing the Past Assess the Future*. US Nuclear Regulatory Commission, May 29th 2019 (Washington DC).
- [36] **Talke, S.A.** (2019), *The effect of sea-level rise on tides, storm surge, and waves: looking backwards to see forwards*. Presented at the School of Oceanography, University of Washington seminar series on Climate Change. Feb. 26, 2019
- [35] **Talke, S.A.** (2019), *Changes in Estuary Extreme Sea Levels over time: Looking backwards to see forwards*. Presentation at Cal-Poly San Luis Obispo, Feb. 14, 2019
- [34] **Talke, S.A.** (2018), *Changing water temperature on the lower Willamette and Columbia Rivers, 1850-present*. Presentation to US Army Corp of Engineers and other Columbia River stakeholders, March 2018 (Portland, OR).
- [33] **Talke, S.A.** (2017). *Unraveling the total water level spectrum*. AGU Gordon Research Conference on Coastal Circulation, Biddeford, Maine (June 2017)
- [32] **Talke, S.A.** (2016). *Historical Tide data recovery and analysis: update*. Presented for the US Army Corps of Engineers—November 9, 2016 (online, National attendance)
- [31] **Talke S.A.** (2016). *Floods, Tides, and Benchmarks: Reconstructing the Past to assess the Future*. Presentation to Research Institute for Water and Environment (fwu) U. Siegen, Germany Sept. 2016
- [30] **Talke, S.A.** (2015). *Tides, Floods, and Benchmarks: Reconstructing the Past to assess the Future*. Quarterly Lecture, Civil and Environmental Engineering, Portland State University (May)

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- [29] **Talke, S.A.** (2015). *Using 19th century data to address 21st century problems*. Presented twice for the US Army Corps of Engineers—March 24th and May 6th (online, National attendance)
- [28] **Talke, S.A.**, D.A. Jay, P.M. Orton (2014). *Long-term shift in New York Harbor storm tides, 1844-present*. Presented at annual meeting of the American Geophysical Union, San Francisco, December 2014.
- [27] **Talke, S.A.** (2014). *Changing sea-level, storm tides, and hydrology from 1844-present*. Seminar at Scripps Institute of Oceanography, UC San Diego (Host Sarah Giddings; Sept. 2014).
- [26] **Talke, S.A.** (2014). *Leveling and Sea-Level in Astoria, OR 1853-Present*. Professional Land Surveyors of Oregon (PSLO) meeting, (June 2014)
- [25] **Talke S.A.** (2014). *Fluten, Sturmfluten, und Tide veraenderungen, 1844-2013*. Research Institute for Water and Environment (fwu) U. Siegen, Germany. (May 2014)
- [24] **Talke, S.A.** (2014). *Was Hurricane Sandy affected by climate change?* Physics department seminar, Portland State University, Portland (Apr. 2014)
- [23] **Talke, S.A.** (2014). *Changing Tides, Constant Sea Level: Comparing the 19th and 21st century Lower Columbia River Estuary*. Seminar at United States Geological Survey, Portland, Jan. 2014
- [22] **Talke, S.A.** (2013). *Using 19th century tide data to address 21st century problems*. Seminar at San Francisco State University, Department of Earth and Climate Sciences, Feb. 2013
- [21] **Talke, S.A.**, D. A. Jay (2012). *Recovering and reanalyzing 19th century sea-level and tidal measurements*. Geological Society of America conference in Charlotte, NC, Nov 2012.
- [20] **Talke, S.A.** (2012). *Turbulence statistics and coherent structures in a tidal river*. Seminar series in the Jacobs School of Engineering, University of California, San Diego. May 2012
- [19] **Talke, S.A.** (2012). *From boils to basins: Tides, turbulence and transport processes*. Seminar at the department of Ocean and Resource Engineering, University of Hawaii at Manoa. May 2012.
- [18] **Talke, S.A.** (2012). *Assessing secular change in sea level, tidal processes, and river flow using historical tide gauge data (1853-present)*. Oregon State University Department of Oceanography seminar series, Jan. 2012.
- [17] **Talke, S.A.** (2011). *Surface flow, turbulence, and coherent structures in a tidal river*. ASPRS (American Society of Photogrammetry and Remote Sensing) 15th annual meeting, Vancouver, WA, Oct. 2011.
- [16] **Talke, S.A.** & D.A. Jay (2011). *Historical Tsunamis on the Columbia River*, Tsunami Workshop, Oregon State University (Organized by H. Yeh).
- [15] **Talke, S.A.** (2011). *Boils and turbulence structure in a tidal river*, Presented in the MME seminar series at Portland State (April; organized by B. Cal).
- [14] **Talke, S.A.** (2009). *Turbidity zone dynamics and oxygen depletion in the Ems Estuary*. Horn Point Laboratory, University of Maryland, October 2009
- [13] **Talke, S.A.** (2009). *The development of lee waves and boils in periodically stratified flow over an estuarine sill: in-situ and surface (IR) observations* IMAU seminar at the University of Utrecht, June 2009.
- [12] **Talke, S.A.** (2009). *Formation of coherent structures (boils) at an estuarine sill*. Physical Oceanography Seminar at the University of Washington, May 2009.
- [11] **Talke, S.A.** (2008). *Can a book be judged by its cover? Field and laboratory studies of coherent structures*. Environmental Engineering Seminar at Stanford University, May 2008.

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- [10] **Talke, S.A** (2008). *Oxygen deficits in highly turbid estuaries: Observations in the Ems and a simple model*. LOICZ (Land Ocean in Coastal Zone) project workshop, including local stakeholders and scientists, Emden Germany, Feb. 14, 2008
- [9] **Talke, S.A.** (2007). *Sediment transport and oxygen depletion in an extremely muddy estuary*. Civil and Environmental Engineering seminar series, University of Washington, Oct. 2007.
- [8] **Talke, S.A.** (2007). *Measurements and Models of the Turbidity Maximum of the Ems Estuary*. Civil Engineering department, University of Delft, April 2007.
- [7] **Talke, S.A.** (2007). *Physical and Biological Measurements and Models at the Turbidity Maximum of the Ems Estuary*. (2007) LOICZ (Land Ocean in Coastal Zone) project workshop, including local stakeholders and scientists, Emden Germany, Feb. 23, 2007
- [6] **Talke, S.A & H.E. de Swart** (2006). *Measuring and modelling the effect of high turbidity and fluid mud on vertical mixing and residual currents in the Ems Estuary*. Workshop on Mathematics and Earth Sciences (NDNS), Groningen, Netherlands, Nov 29, 2006.
- [5] **Talke, S.A. & H.E. de Swart** (2006). *Turbidity currents and the changing distribution of sediment at the estuarine turbidity maximum (ETM) of the Ems Estuary*, Baltic Sea Research Institute in Warnemuende, Germany, Nov. 10, 2006.
- [4] **Talke, S.A & H.E. de Swart** (2006). Schwebstoffdynamik TideEms: Prozesse das die Lage und Verteilung von hohe Schwebstoffkonzentrationen der TideEms beeinflussen: Truebung, Salzgehalt, und vertiefung des Fluesses (*Processes affecting the location and distribution of high sediment concentrations in the Ems estuary: turbidity, salinity, and deepening of the river*). Presented at joint BAW/BfG Colloquium in Hamburg, Germany, Nov 8. 2006.
- [3] **Talke, S.A & H.E. de Swart** (2006). *Measuring and Modelling the effect of high turbidity and fluid mud on vertical mixing and residual currents in the Ems Estuary* Presented at Workshop “Physical processes in estuaries: observations and model approaches” in Antwerp, Belgium, April 2006.
- [2] **Talke, S.A, V.N. de Jonge, & H.E. de Swart** (2006). *The dynamics of estuarine turbidity maxima*. Workshop on Ems Estuary, Groningen, Netherlands, March 2006.
- [1] **Talke, S.A.** (2005). *Physical Processes on Intertidal Mudflats: Waves, Currents, and Sediment Transport*. Presented in IMAU lecture series, Utrecht, Netherlands, June 2005.

2. CONFERENCE PRESENTATIONS

- [70] **Talke, S.A., D.A. Jay, D., R. Familkhalili** (2019) Secular Change in Estuary Tides: the influence of friction and reflection. IUGG (International Union of Geodesy and Geophysics) Meeting, Montreal July 2019
- [69] **Talke, S.A., D.A. Jay, D., R. Familkhalili** (2019) Secular Change in Estuary Storm Tides: the effect of tides and friction. IUGG (International Union of Geodesy and Geophysics) Meeting, Montreal July 2019
- [68] **Talke, S.A., D.A. Jay, D. K. Ralston , P. M. Orton, R. Familkhalili** (2018) *Non-stationarity in Estuarine Extremes—the effect of anthropogenic alterations and future sea-level rise*. Annual Meeting of the American Geophysical Union, Washington D.C., Dec. 2018
- [67] **Talke, S.A., R. Familkhalili, & D.A. Jay** (2018) *The influence of channel deepening on high water marks: case study of hurricane Irma*. Physics of Estuaries and Coastal Seas Conference, Galveston, TX, Oct. 2018

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- [66] Jay, D.A., L.T. Helaire, & **S.A. Talke** (2018). *Tidal River Dynamics at a Junction: Portland-Vancouver Harbor*. Columbia River Estuary Conference, Astoria, OR, Apr. 2018
- [65] Helaine, L.T., **S.A. Talke** & H. Chang, Modeling Flood Risk in the Portland, OR Metro area. Columbia River Estuary Conference, Astoria, OR, Apr. 2018
- [64] **Talke, S.A.**, D.A. Jay, & L. Helaire (2018) *Sea-Level Rise in the Columbia River Estuary, past, present, and future*. Columbia River Estuary Conference, Astoria, OR, Apr. 2018
- [63] Jay, D.A., L.T. Helaire, & **S.A. Talke** (2018). *Tidal River Junction Dynamics: Portland-Vancouver Harbor*. American Geophysical Union Ocean Sciences, Portland (OR)
- [65] Helaine, L.T., S.A. Talke, D.A. Jay & H. Chang (2018) Comparison of Winter and Spring Freshets in the Lower Columbia River. AGU Ocean Sciences, Portland (OR)
- [64] Jurisa, J.T., **S.A. Talke** & D.A. Jay (2017). *Storm Surges and Circulation in the New York/Raritan Bay System: Climatic and Synoptic Scale Perspectives*. Coastal and Estuarine Research Federation conference, Providence, RI, Nov. 2017.
- [63] **Talke, S.A.**, A.C. Kemp & J. Woodruff, (2017) Relative Sea Level, Tidal Range, and Extreme Water Levels in Boston Harbor from 1825 to 2016. AGU Fall Meeting. presented by A. Kemp.
- [62] **Talke, S.A.** (2017) Changes in water level, river flow and water temperature on the lower Columbia River, 1853-present, AWRA (American Water Resources Association) conference, Portland (OR). Nov. 2017
- [61] Helaine, L. T., **S.A. Talke** & H. Chang (2017) *Modeling Flood Risk in the Portland, OR, Metro Area* AWRA (American Water Resources Association) conference, Portland (OR). Nov. 2017
- [60] Chang, H., S.Cho, H. Duong, L.T. Helaire, **S.A. Talke** & J. Caudill (2017). *Collaborative flood modeling and risk analysis in the Lower Willamette River*. AWRA (American Water Resources Association) conference, Portland (OR). Nov. 2017
- [59] Burmester, D., S. Guthrie, **S.A. Talke** (2017). FLOWS Connects With High School: The Columbia River Environment Oregon Science Teacher Association Conference, Sept. 2017 (Portland).
- [58] Chang, H., H. Duong, L.T. Helaire & **S.A. Talke** (2017). *An Integrated Approach to Assessing Urban Flood Risk in a Changing Climate* The 12th KCJ Joint (3rd Asian) Conference on Geography, Jeju University, South Korea.
- [57] **Talke, S.A.**, A. Kemp, D. Jay, K. White (2017). Instrumentally measured sea-level rise in North America, 1825-present. Poster presented at *WCRP/IOC conference on Regional Sea Level Changes and Coastal Impacts*, New York July 2017.
- [56] Orton, P.M., R. Marsooli, E. Sanderson, **S.A. Talke**, J. Fitzpatrick, N. Kogan, M. Giampieri, K. Fisher (2017). Anthropomorphic Influences on Estuary Storm Tides and Exchange Processes. Poster presented at Gordon Research Conference, Biddeford Maine, June 2017
- [55] Gurumurthy, P., P. Orton, N. Georgas and **S.A. Talke** (2017). Historical Evolution and Mechanics of Sea Level Blowouts in New York Harbor. Poster presented at Gordon Research Conference, Biddeford Maine, June 2017
- [54] Helaine, L. T., **S.A. Talke**, H. Chang & D.A. Jay (2016). *Modeling Flood Risk in the Portland Metro Area due to sea-level rise and increased discharge*, Northwest Climate Conference, 15 November, 2016, Skamania Lodge, Stevenson, WA

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- [53] **Talke, S.A.**, D.A. Jay & L.T. Helaire (2016). *Changes in water level and water temperature on the lower Columbia River, 1853-present*. Northwest Pacific Climate Conference, Skamania, WA, Nov. 2016
- [52] **Talke, S.A.**, D.A. Jay, R. Familkhalili, L.T. Helaire (2016). *Secular changes to Long Waves in Estuaries: Case studies on the US East and West Coast*. PECS (Physics of Estuaries and Coastal Seas) conference in Oct. 2016 in Scheveningen, The Hague (The Netherlands).
- [51] Chang, H., H. Duong, L.T. Helaire & S.A.Talke (2016). *Assessing Urban Flood Risk in a Changing Climate*, International Geographical Union (IGU) conference (Beijing, Aug. 2016)
- [50] Helaire, L.T., **S.A. Talke**, D.A. Jay, A. Mahedy, A. Hudson (2016). *Modeling Historic Salinity Intrusion in the Lower Columbia River Estuary*, Columbia River Estuary Conference, Astoria, OR, May 2016
- [49] **Talke, S.A.**, D.A. Jay (2016). *How extreme were 2015 water temperatures in the lower Columbia and Willamette Rivers?* Columbia River Estuary Conference, Astoria (OR) in May 2016.
- [48] Helaire, L.T., **S.A.Talke**, A.Mahedy, D.A. Jay (2016). *Modeling Historic Salinity Intrusion in the Lower Columbia River Estuary*, American Geophysical Union, Ocean Sciences Meeting, 22 February, 2016, Ernest N. Morial Convention Center, New Orleans, LA
- [47] Jay, D. A., and **S. A. Talke** (2016), *Disentangling Nonlinear and Nonstationary River-Tide Dynamics with CWT_Multi*, AGU/ASLO/TOS Ocean Sciences, New Orleans, February 2016.
- [46] Jay, D.A., **S.A. Talke**, A. Hudson, M. Twardowski (2015). *Estuary turbidity maxima – Connections between the tidal-fluvial and estuarine regimes*. Invited Presentation: AGU Fall Meeting (2015).
- [45] Woodruff, J.D., Z. Stromer, **S.A. Talke**, P. Orton, (2015) *Improving Extreme Flood Risk Assessments for New York City and the Northeastern United States*, AGU Fall Meeting, San Francisco (CA).
- [44] **Talke, S.A.**, D.A. Jay, L.T. Helaire (2015). *Trends in Trends in Columbia River Flow, Water Temperature and Sea Level since 1850*. Coastal and Estuarine Research Foundation conference, Portland, OR, Nov. 2015
- [43] A. Hudson, **S. A. Talke**, D. A. Jay (2015). *Effects of bottom topography and internal tidal asymmetry on Columbia River Estuary ETM formation*. Presentation: Coastal and Estuarine Research Federation (2015).
- [42] Helaire, L.T., **S.A. Talke**, D.A. Jay, A. Mahedy (2015). *Development of a Historic Hydrodynamic Model of the Lower Columbia River*, Coastal and Estuarine Research Federation Biennial Conference, 10 November, 2015, Oregon Convention Center, Portland, OR
- [41] Jay, D. A., L.T. Helaire, **S. A. Talke**, A.Borde, H. Diefenderfer, A.Hamlet, and A. Mahedy (2015), *Long-term changes in wetland inundation patterns in the Columbia River Estuary*, CERF (Coastal and Estuarine Research Federation) 2015 Meeting, Portland, November 2015.
- [40] Orton, P, R. Marsooli, E. Sanderson, M. Giampieri, N. Georgas, A. Blumberg, D. A. Jay, **S. A. Talke**, and Z. Wu (2015), *Centuries of evolving morphology and flood hazards for an urban estuary*, CERF (Coastal and Estuarine Research Federation) 2015 Meeting, Portland, November 2015.
- [39] Devlin, A., D. A. Jay, **S. A. Talke**, E. Zaron (2015), *Seasonality of sea level and tides in Southeast Asian waters*, CERF (Coastal and Estuarine Research Federation) 2015 Meeting, Portland, November 2015.

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- [38] Helaire, L.T., **S.A. Talke**, D.A. Jay, A. Mahedy (2015). *Development of a Historic Hydrodynamic Model of the Lower Columbia River*, International workshop on Multi-scale (Un)-structured mesh numerical modeling for coastal, shelf and global ocean dynamics, Portland, OR, August 2015
- [37] Moftakhari, H. R., D. A. Jay, and **S. A. Talke** (2015). *How human activities changed the sediment loads to San Francisco Bay over the last 160 years?*, Coastal & Estuarine Research Federation, 23rd biennial conference, Portland, OR.
- [36] **Talke, S.A.**, D.A. Jay (2015). *The return period of bed stress along the estuary-river continuum*. Battelle Conference, New Orleans, Jan. 2015
- [35] Jay, D. A. and **S. A. Talke** (2015), *The Passaic as a tidal-river estuary*, Battelle Sediments Conference, New Orleans, January 2015.
- [34] **Talke, S.A.**, D.A. Jay, L.T. Helaire (2014). *Long term trends in Columbia River Flow since 1850*, Eastern Pacific Ocean Conference, Timberline Lodge (OR), Sept. 2015
- [33] **Talke, S.A.**, A. Hudson (2014). *Using satellite measurements to improve understanding of estuarine turbidity dynamics*. European Geophysical Union meeting, Vienna, Austria, May 2014
- [32] **Talke, S.A.**, D.A. Jay (2014). *Water levels and extremes in the Columbia River Estuary since 1853* Columbia River Estuary Workshop, Astoria, OR May 2014
- [31] Mahedy, A., L. Helaire, **Talke, S.A.**, D.A. Jay (2014). *Modeling changes to the historic Lower Columbia River Estuary using Delft3D*. Columbia River Estuary Workshop, Astoria, OR May 2014
- [30] A. Hudson, **S. A. Talke** (2014). *Remote sensing of turbidity and water temperature in the Columbia River Estuary*. Columbia River Estuary Workshop, Astoria, OR (2014).
- [29] **Talke, S.A.**, D.A. Jay, P. Orton (2013), *Analyzing 190 years of extreme water level estimates at New York Harbor*, Coastal and Estuarine Research Foundation conference in San Diego, CA (Nov. 2013)
- [28] Moftakhari, H. R., D.A. Jay, **S.A. Talke**, and S. Madadgar (2013). *Changes in the Seasonal Variation of Sediment Transport to San Francisco Bay in the last 150 years*, AGU Fall Meeting 2013, San Francisco, CA.
- [27] Moftakhari, H. R., D.A. Jay, and **S.A. Talke** (2013). *Estimating Sediment Load to Estuaries and Bays Using Tides*, 2013 AWRA Annual Water Resources Conference, Portland, OR.
- [26] Jay, D. A. and **S. A. Talke** (2012), *Separating human and climate influences on century-scale changes in tidal Rivers: the Columbia and the Ems*, Chapman Tidal Rivers Conference, November 2012
- [25] **Talke, S.A.**, D.A. Jay (2012), *Mean sea-level, tidal properties, and extreme events in Astoria, OR from 1853-present*, EPOC (Eastern Pacific Oceanography Conference) meeting in Sept. 2012 at Mt Hood, OR.
- [24] **Talke, S.A.**, D.A. Jay (2012) *Using historical, 19th century tide data to understand secular variation in estuarine tidal properties*, PECS (Physics of Estuaries and Coastal Seas) conference in Aug 2012 in New York City, NY.
- [23] Moftakhari, H. R., D.A. Jay, and **S.A. Talke** (2012). *A Novel approach to Estimate Suspended Sediment Concentration in Estuaries Using Tides*, Heceta Head Coastal Conference, Florence, OR.
- [22] Jay, D. A., S. A. Talke, A. Devlin and E. Zaron (2012), *Separating decadal-scale fluctuations from trends in tidal properties*, AGU Ocean Sciences Meeting in Salt Lake City, Utah, Feb. 2012.
- [21] **Talke, S.A.**, D. A. Jay, K. Leffler, and Adam Devlin (2011). *Data archaeology in the Pacific Northwest: What tidal data were measured in the 19th and early 20th century, and what can they tell us?* Presented at PERS (Pacific Estuary Research Society) conference, Astoria OR.

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- [20] **Talke, S.A.**, A.R. Horner-Devine, C. Chickadel & A.T. Jessup (2011). *Coherent Structures and turbulent statistics in a tidal river* presented at Coherent Flow Structures II conference, Vancouver, B.C. in Aug. 2010.
- [19] A.T. Jessup, C.C. Chickadel, **S. A. Talke**, A.R. Horner-Devine, R. Branch (2011). *COHSTREX Coherent Structures in Rivers and Estuaries Experiment* presented at Coherent Flow Structures II conference, Vancouver, B.C. in Aug. 2010.
- [18] **Talke, S.A.**, D.A. Jay, K. Leffler, & A. Devlin (2011). *Data archaeology in the Pacific Northwest: What tidal data were measured in the 19th and early 20th century, and what can they tell us?* Pacific Estuary Research Society (PERS) Annual Meeting, Mar. 2010, Astoria
- [17] **Talke, S.A.**, A.R. Horner-Devine, C. Chickadel & A.T. Jessup (2010). *Coherent Structures and Near Surface Turbulence in a tidal river* AGU Fall meeting, San Francisco, Dec. 2010
- [16] C. C. Chickadel, A.T. Jessup, **S.A. Talke**, and A.R. Horner-Devine (2010). *Surface Flow and Turbulence in an Estuarine River Channel* AGU Fall Meeting
- [15] **Talke, S.A.**, A.R. Horner-Devine, C. Chickadel & A.T. Jessup (2010). *Coherent Structures in the Snohomish River Estuary: Comparison of Near Surface Flow and Turbulence Measurements with Infra-Red Video*. Nortek User Conference/Symposium, May 2010, Seattle (WA)
- [14] **Talke, S.A.**, A.R. Horner-Devine, C. Chickadel & A.T. Jessup (2010). *Near surface turbulent mixing and coherent structures in the Snohomish estuary: Part I*. AGU Ocean Sciences meeting, Feb. 2010
- [13] Horner-Devine, A.R., **S.A. Talke**, C.C. Chickadel, A.T. Jessup (2010). *Near surface turbulence and coherent structures: Part II near-surface modification of turbulent structures*, American Geophysical Union, Ocean Sciences Meeting, Portland, OR, February, 2010.
- [12] **Talke, S.A.**, C. Sommerfield, D. Jay, & R. Chant (2009). *Natural and Anthropogenic Changes in Estuaries: An Historical Perspective*. Introduction to session SCI-95 at CERF conference, Nov. 2009.
- [11] **Talke, S.A.**, A.R. Horner-Devine, C. Chickadel & A.T. Jessup (2009). *The temporal and spatial evolution of internal lee waves at an estuarine sill*. Presented at CERF conference, Nov. 2009
- [10] Chernetsky, A., H.M.Schuttelaars, **S.A. Talke** (2008). The effect of deepening the Ems Estuary on tidal dynamics and Residual Circulation Patterns. Physics of Estuaries and Coastal Seas (PECS) conference.
- [9] **Talke, S.A.**, A.R. Horner-Devine, C. Chickadel (2008). *Characterizing coherent structures in an estuary using in-situ and remote measurements*. American Geophysical Union. Ocean Sciences meeting, Florida, March 2008.
- [8] Horner-Devine, A.R., **S.A. Talke** and C. C. Chickadel (2008). *COHSTREX: The structure of estuary boils observed with a digital echosounder*, American Geophysical Union, Ocean Sciences Meeting, Orlando, FL, March, 2008.
- [7] **Talke, S.A.**, H.E. de Swart, & V.N. de Jonge (2007). *Modeling the distribution of oxygen deficits in highly turbid estuaries*. ERF conference in Providence, RI, Nov. 2007.
- [6] Chernetsky, A., **S. A. Talke**, H.M. Schuttelaars, & H. E. de Swart (2007). *Effect of Deepening the Ems Estuary on Tidal Dynamics and Residual Circulation Patterns*. ERF conference in Providence, RI, Nov. 2007
- [5] **Talke, S.A.**, H.E. de Swart & H.M.Schuttelaars (2007). *An analytical model of the equilibrium distribution of suspended sediment in estuaries*. Presented at RCEM conference in Sept. 2007 in Enschede, Netherlands, by H.E. de Swart.

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- [4] **Talke, S.A.**, H.E. de Swart, H.M. Schuttelaars (2006). *Feedback between residual circulations and sediment distributions in highly turbid estuaries: an analytical model*. BBOS symposium (annual symposium of Institute for Marine and Atmospheric Sciences, Utrecht, Nov. 3, 2006).
- [3] **Talke, S.A.**, H.E. de Swart & H.M.Schuttelaars (2006). *Feedback between residual circulations and sediment distribution in highly turbid estuaries: an analytical model*. PECS conference, Astoria, Oregon, in September 2006.
- [2] **Talke, S.A.**, V.N. de Jonge, & H.E. de Swart (2005). *Measuring and Modelling Biological and Physical Parameters at the Estuary Turbidity Maximum on a River with High Sediment Concentration (Ems Estuary)*, presented at ECSA regional conference, Groningen, NL, Nov. 2005.
- [1] **Talke, S.A.** & M.T. Stacey (2002). *Spectral Analysis of near bed velocity measurements at an intertidal estuarine mudflat*. AGU Ocean Sciences Meeting, Honolulu, Hawaii 2002.

3. CONFERENCE POSTERS

- [34] H. Baranes, J. D. Woodruff, **S. A. Talke**, and R. D. Ray (2018), *Temporal trends in annual high water extremes in the Gulf of Maine*. Annual Meeting of the American Geophysical Union, Washington D.C., Dec. 2018
- [33] **Talke, S.A.**, D.A. Jay, L. Helaire (2018) *Sea-Level Rise in the Columbia River Estuary, past, present, and future*. Eastern Pacific Oceanography Conference, Timberline Lodge, Government Camp (OR), Sept. 2018.
- [32] Al' Bahadily, A., **S.A. Talke**, J.Jurisa, D.A. Jay (2018). Impact of Bathymetric Change & Flow Modification on Columbia River Estuary (CRE) Salinity Intrusion. Eastern Pacific Oceanography Conference, Timberline Lodge, Government Camp (OR), Sept. 2018.
- [31] Helaire, L.,**S.A. Talke**, H. Chang (2018) *Flood Risk in the LCRE: Present, and Future*, Timberline Lodge, Government Camp (OR), Sept. 2018.
- [30] **Talke, S.A.**, A.C. Kemp & D.A. Jay (2018) *Instrumental Measurements of North American Sea Level, 1825 to the present*. American Geophysical Union, Ocean Sciences Meeting, Portland (OR), Feb. 2018.
- [29] Familkhalili, R., **S.A. Talke** & D.A. Jay (2018). *Changes in Inundation Risk in the Delaware River Estuary: Past and Future*. Poster at Ocean Sciences Meeting, Portland (OR), Feb. 2018
- [28] Overman, C.C.M, **S.A. Talke** & D.A. Jay (2018). Water temperature changes in the Lower Columbia River, 1850-present. Poster at Ocean Sciences Meeting, Portland (OR), Feb 2018
- [27] Rappaport, J., L. Helaire, **S.A. Talke** & D.A. Jay (2018). Using Hydrodynamic Models to Assess the Impact of Hydrologic and Bathymetric Changes on Shallow Water Habitat in the Lower Columbia River. Poster at Ocean Sciences Meeting, Portland (OR), Feb. 2018
- [26] Al-Bahdily, A., **S.A.Talke**, D.A.Jay, (2018). *Changes in the Lower Columbia River Seasonal Cycle of Salinity Intrusion Related to Changes in the River Flow Regime* . Poster at Ocean Sciences Meeting, Portland (OR), Feb. 2018
- [25] Overman, C.C., **S.A.Talke**, D.A.Jay (2018) Water temperature changes in the Lower Columbia River, 1850-present Submitted to AGU Ocean Sciences Meeting (Portland, OR, Feb. 2018).
- [24] R. Branch, A. Horner-Devine, C. Akan, C. Chickadel, G. Farquharson, A. Hudson, A. Jessup, **S. A. Talke**, J. Thomson (2018) Airborne Lidar measurements of tides, waves, and surface slope at the

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- mouth of the Columbia River. Submitted to AGU Ocean Sciences Meeting (Portland, OR, Feb. 2018).
- [23] Familkhalili, R., **S.A Talke**, D.A. Jay (2018). *Changes in Inundation Risk in the Delaware River Estuary: Past and Future*, Ocean Sciences Meeting, Portland, OR. (submitted)
- [22] Al-Bahadily, A., **S.A Talke**, D.A. Jay & J. Jurisa, (2018). Changes in the Lower Columbia River Seasonal Cycle of Salinity Intrusion Related to Changes in the River Flow Regime, Ocean Sciences Meeting, Portland, OR. (submitted)
- [21] **Talke, S.A.**, A.Kemp, D.A. Jay, & K. White (2017). *Instrumentally measured sea-level rise in North America, 1825-present*. Poster International WCRP/IOC conference on Regional Sea Level Changes and Coastal Impacts, July 2017, New York
- [20] Orton, P., R. Marsooli, E. Sanderson, **S.A. Talke**, J. Fitzpatrick, M. Giampieri, K. Fisher (2017). *Anthropomorphic influences on estuary storm tides and exchange processes*. Gordon Research Conference on Coastal Dynamics, Biddeford Maine, June 2017.
- [19] Gurumurthy, P., P. Orton, N. Georgas & **S.A. Talke** (2017). *Historical Mechanics and Evolution of Sea Level Blowouts*, Gordon Research Conference on Coastal Dynamics, Biddeford Maine, June 2017.
- [18] **Talke, S.A.**, D.A. Jay, R. Familkhalili, L. Helaire (2016). *The effect of changing topography on coastal tides and storm surge: a historical perspective*. 69th meeting of The APS Division of Fluid Dynamics conference, Portland, OR, Nov. 2016
- [17] **Talke, S.A.**, D.A. Jay, R. Familkhalili, L. Helaire (2016). *Trends in North American tides and storm surge, 1844-present*. National Science Foundation Grants Conference/Workshop, Portland State University, Feb. 2016.
- [16] **Talke, S.A.**, D.A. Jay, R. Familkhalili, L. Helaire (2016). *Trends in North American tides and storm surge, 1844-present*. AGU Ocean Sciences Meeting, New Orleans, Feb. 2016
- [15] A. Hudson, **S.A. Talke**, D. Jay (2016). *Fluvial impacts on tidal range, salinity intrusion, and the fresh-saltwater interface*. AGU Ocean Sciences Meeting (2016).
- [14] Familkhalili, R., **Talke, S.A.** (2015). "Increased tides and storm surge in the Cape Fear River Estuary over the past century", Coastal & Estuarine Research Federation, Portland, OR.
- [13] Helair, L.T., S.A. Talke, D.A. Jay, A. Mahedy (2015). *Long-term changes in tidal dynamics in the Lower Columbia River*, Numerical Modeling of Estuarine and Coastal Systems, Coastal and Estuarine Research Federation Biennial Conference, 9 November, 2015, Oregon Convention Center, Portland, OR
- [12] A. Hudson, **S.A. Talke** (2015). *Applications of remote sensing to the study of estuarine physics: Suspended sediment dynamics in the Columbia River Estuary*. Poster: IOCCS Meeting (2015).
- [11] **Talke, S.A.**, A. Hudson, C. Chickadel, G. Farquarson, & A.T. Jessup (2014). *Using airborne LIDAR to measure tides and river slope*. Annual meeting of the American Geophysical Union, San Francisco
- [10] Devlin, A., D. A. Jay, S. A. Talke, and E. Zaron (2014), *Can tidal perturbations associated with sea level variations in the western Pacific Ocean be used to understand future effects of tidal evolution?* AGU Fall Meeting December 2014, San Francisco, CA.
- [9] Jay, D. A. & **S. A. Talke** (2012), *Decadal and Sub-Decadal Scale Fluctuations in Eastern Pacific Tides – Local or Regional or?*, EPOC (Eastern Pacific Oceanography Conference) meeting in Sept. 2012 at Mt Hood, OR.

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- [8] **Talke, S.A.**, D.A. Jay, & E. Zaron (2012). *A possible role of local, anthropogenic modification of estuaries in the observed secular change to tide*, poster AGU Ocean Sciences Meeting in Salt Lake City, Utah, Feb. 2012.
- [7] **Talke, S.A.**, D.A. Jay, P. Caldwell, & M. Merrifield (2011). *Historic tide measurements in North America and the Pacific*. Twelfth Session of the GLOSS (Global Sea Level Observing System) Group of Experts, International Oceanographic Commission (IOC) of UNESCO, Paris, Nov. 2011.
- [6] **Talke, S.A.**, A.R. Horner-Devine, C. Chickadel, M. Scully, R. Geyer (2007). *Characterizing turbulence in the presence of coherent structures in an estuary*, Fall AGU meeting in San Francisco, Dec. 2007.
- [5] **Talke, S.A.** & H.E. de Swart (2006). *Turbidity driven flows at the Estuary Turbidity Maximum (ETM) in the Ems Estuary*. Poster at Coastal Seas conference, Bangor, Wales April 2006.
- [4] **Talke, S.A.**, V.N. de Jonge, & H.E. de Swart (2005). *Measuring and Modelling Biological and Physical Parameters at the Estuary Turbidity Maximum on a River with High Sediment Concentration (Ems Estuary)*, BBOS symposium (annual symposium of Institute for Marine and Atmospheric Sciences, Utrecht), Nov. 2005.
- [3] **Talke, S.A.**, V.N. de Jonge, & H.E. de Swart (2005). *Measuring and Modelling Biological and Physical Parameters at the Estuary Turbidity Maximum on a River with High Sediment Concentration (Ems Estuary)*, ERF conference in Norfolk, VA, Oct. 2005.
- [2] **Talke, S.A.** & M.T. Stacey (2004). *Sediment Transport on an Intertidal Mudflat: Presence and Importance of Multiple Frequencies of Motion*, AGU Chapman Conference, Halifax, Nova Scotia, Canada, Oct. 2004.
- [1] **Talke, S.A.** & M.T. Stacey (2004). *Boundary layer dynamics on an intertidal mudflat in central San Francisco Bay*, AGU Ocean Sciences Meeting, Portland Oregon Jan. 2004.

4. OTHER PRESENTATIONS

- [17] **Talke, S.A.**, L.T. Helaire, H. Chang, (2017). *Floods in Portland: The effects of future sea-level rise and increased flood intensities*. Presentation given to City of Portland and other Stakeholders (March 2017)
- [16] **Talke, S.A.** (2017). Research Overview. Student Open House, Portland State University
- [15] **Talke, S.A.**, L.T. Helaire, H. Chang, (2017). *Floods in Portland: The effects of future sea-level rise and increased flood intensities*. Presentation given to City of Portland Bureau of Environmental Services. (Feb 2017)
- [14] **Talke, S.A.**, L.T. Helaire, H. Chang, (2016). *Floods in Portland: The effects of future sea-level rise and increased flood intensities*. Presentation given to City of Portland Bureau of Planning and Sustainability. (Dec. 2016)
- [13] **Talke, S.A.** (2016). *Using archival research and modeling to assess non-stationarity and improve ergodicity: case studies of storm surge and coastal river floods*. SERDPP Project Meeting, Portland OR
- [12] **Talke, S.A.** (2016). Research Overview. Student Open House, Portland State University
- [11] **Talke, S.A.** (2016). *Extreme Events Analysis and Data Recovery Update*, Passaic River project meeting. Joint meeting with U. Illinois collaborators and Tierra Solutions, Inc. (February & March 2016).

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- [10] **Talke S.A.** (2015). *Nineteenth Century Sea-level and Extremes on the US East and West Coast*, Stevens Institute of Technology—working meeting with co-collaborators P. Orton, J. Woodruff, and others.
- [9] **Talke, S.A.** (2014). *Extreme Coastal flooding events in New York City*. Presented in Columbia River Estuary Class, Portland State (D. Jay).
- [8] **Talke, S.A.** (2014). *Leveling in the Columbia River Estuary*—presented in Tom Symoniak’s CEE 111 class., Portland State University, April 2014
- [7] Jay, D. A., **S.A. Talke**, P. M. Orton (2014), *Hurricane Sandy and Increasing Storm Risk in New York Harbor, 1844-2013: A Perspective from NOAA Historical Data* Hydrographic Science Review Panel (HSRP) Meeting, NOAA, New York, Feb. 2014.
- [6] **Talke, S.A.** (2014). *Research Overview* Presentation for Advisory Council of Civil and Environmental Engineering Department, Portland State University, Feb. 2014
- [5] **Talke, S.A.** (2014). Research Overview. Student Open House, Portland State University
- [4] **Talke, S.A.** (2013). Presentation for Hydrodynamic and Ecosystems Process Group. Student Open House, Portland State University
- [3] **Talke, S.A.** (2012). RIVET-II project meeting for Mouth of the Columbia River Project. Meeting held by Office of Naval Research, 2012 (Denver, CO).
- [2] **Talke, S.A.** (2011). *Marine Sediment Transport: Concepts and Measurement Techniques*. Presented in Columbia River Estuary Class, Portland State (D. Jay).
- [1] **Talke, S.A.** (2009). *Hydrodynamics and Sediment Dynamics of Intertidal flats*—Lecture given in P. MacCready’s Oceanography class, University of Washington, Feb. 2009