

RESEARCH SUMMARY

As an integrative ecologist, the core goal of my research program is to incorporate physiological and physical principles into ecological studies to better understand processes structuring coastal communities. I use laboratory and field studies to assess how changes in the physiological and physical environment (anthropogenic and natural) affect organisms and the extent to which organismal level effects can inform predictions on population and community level shifts associated with abiotic change. I particularly focus on collaborative approaches that integrate knowledge and methods from multiple disciplines.

ADMINISTRATIVE SUMMARY

Administration can play pivotal roles in enabling research excellence and catalyzing the uptake of research-derived innovation. On the other hand, it can also become a major impediment to research. I champion principle-based approaches to research administration that support researchers in their scholarly activities and minimize administrative burden while still balancing the need for public accountability. I approach my administrative practice through the lens of a researcher, using data-driven approaches to inform strategies, assess program efficacy, and refine processes. I am particularly interested in designing research development support structures, revolutionizing the graduate training model to train students for the diversity of research careers they'll enter, and transforming academic processes to enable inclusive excellence.

EDUCATION

- 2009- 2013 **Ph.D.** Zoology, University of British Columbia (Dr. Christopher DG Harley)
2007-2009 **M.Sc.** Marine Biology, Moss Landing Marine Laboratories (Dr. Michael H Graham)
2004-2007 **B.S.** w/ honors (*cum laude*) Biology, University of South Florida (Drs. Bell & Dawes)

PROFESSIONAL POSTS

- 2018- Present **SFU** Director, Institutional Strategic Awards (VP Research)
Provide leadership to a team of research development staff to create successful applications and manage post-award processes for large-scale research programs and serve as the key outward-facing role for the office with external funding agencies and inward-facing role representing the University to faculty and solving issues.
- 2017- Present **UBC** Research Associate, Department of Zoology
- 2016- 2018 **UBC** Senior Advisor, Strategic Initiatives (VP Research & Innovation)
Operationalized institutional research priorities; managed internal research funding competitions; developed and implemented collaborative research excellence strategy; managed large-scale federal research applications (e.g., CFREF, NCE, CERC).
- 2015-2016 **Tula Foundation | Hakai Institute** Strategic Partnerships
Developed partnerships with government, industry, and university collaborators to manage collaborative research programs (\$15M per year); developed institutional

- research policies (e.g., data management) and inter-institutional research agreements (e.g., protocol agreements with First Nations, Universities, and other partners).
- 2013-2015 **SFU Hakai Postdoctoral Research Fellow**
 Developed and led the kelp forest monitoring program for the Hakai Institute to inform resource management during the recolonization of sea otters along BC coast; collaborated with DFO and Parks Canada on their monitoring program to allow BC-wide analyses.

PEER-REVIEWED PUBLICATIONS (*supervised student; †equal contribution)

Pruitt, JN, HV Moeller, A Berdahl, N Pinter-Wollman, J Garland, P Yeh, V Savage, **KW Demes**, EA Hobson. *In Revision*. The Socioecology of coupled tipping points. Target journal: *American Naturalist*.

Starko, S, S Gomez, H Darby, **KW Demes**, H Kawai, N Yotsukura, SC Lindstrom, PJ Keeling, SW Graham, & PT Martone. *In press*. A comprehensive kelp phylogeny sheds light on the evolution of an ecosystem. *Molecular Phylogenetics & Evolution*.

Demes, KW & JN Pruitt. 2019. Seaweed individuality and why we need to care. *Journal of Phycology*.

Demes, KW, GC Murphy, & HM Burt. 2019. Catalyzing Clusters of Research Excellence: An Institutional Case Study. *Journal of Research Administration*.

Burt, J*, T Tinker, D Okamoto, **KW Demes**, K Holmes, A Salomon. 2018. Sudden collapse of a mesopredator reveals its complementary role in mediating rocky reef regime shifts. *Proc. R. Soc. B* 285: 20180553.

Schubert, N† & **K Demes**†. 2017. Phenotypic plasticity in the marine angiosperm *Halophila decipiens* Ostenf. (Hydrocharitaceae, Streptophyta). *Marine Ecology Progress Series* 575: 81-93.

Green, S, **KW Demes**, M Arbeider*, WJ Palen, AK Salomon, TD Sisk, M Webster*, ME Ryan. 2016. Oil sands and the marine environment: Current knowledge and future challenges. *Frontiers in Ecology and Environment* 15(2): 74-83.

Stevenson C*, **KW Demes** & AK Salomon. 2016. Accounting for size-specific predation improves our ability to predict the strength of a trophic cascade. *Ecology and Evolution* 6(4):1041-1053.

Krumhansl, K, **Demes, KW**, CDG Harley, & E Carrington. 2015. Divergent growth strategies between red algae and kelps influence biomechanical properties. *American Journal of Botany* 102(11): 1-7.

Chang, S, J Stone, **K Demes**, M Piscitelli. 2014. Consequences of oil spills: a framework for scenario planning. *Ecology and Society* 19(2): 26.

Demes, KW, CDG Harley, LM Anderson, & E Carrington. 2013. Shifts in morphological and mechanical traits compensate for performance costs of reproduction in a wave-swept seaweed. *Journal of Ecology* 101 (4), 963-970..

Demes, KW, CDG Harley, JN Pruitt, & E Carrington. 2013. Survival of the weakest: Increased frond mechanical strength in a wave-swept kelp inhibits self-pruning increasing mortality. *Functional Ecology* 27: 439-445.

Harley, CDG, K Anderson, **KW Demes**, JP Jorve, RL Kordas, T Coyle, and M Graham. 2012. Effects of climate change on seaweed communities. *Journal of Phycology* 48:1064-1078.

Demes, KW, RL Kordas & JP Jorve. 2012. Intertidal sites exposed to ferry traffic exhibit higher seaweed abundance and diversity. *Hydrobiologia* 693: 1-11.

Demes, KW, E Carrington, J Gosline & P Martone. 2011. Variation in anatomical and material properties explains differences in hydrodynamic performances of foliose red macroalgae (Rhodophyta). *Journal of Phycology* 47(6): 1360-1367.

Pruitt, J, **KW Demes** & D Dittrich-Reed. 2011. Temperature mediates correlated shifts in individual aggressiveness, activity-level, and social behavior in a spider. *Ethology* 117(4): 318-325.

Demes, KW & MH Graham. 2011. Abiotic regulation of vegetative vs. sexual reproduction in the clonal kelp *Laminaria sinclairii* (Laminariales, Phaeophyceae). *Journal of Phycology* (47)3: 463-470.

Demes, KW, MM Littler & DS Littler. 2010. Comparative phosphate acquisition in giant-celled rhizophytic algae (Bryopsidales, Chlorophyta): fleshy vs. calcified forms. *Aquatic Botany* 92(2): 157-160.

Demes, KW, MH Graham & TS Suskiewicz. 2009. Phenotypic plasticity reconciles incongruous molecular and morphological taxonomies: the giant kelp, *Macrocystis* (Laminariales, Phaeophyceae), is a monospecific genus. *Journal of Phycology* 45(6): 1266-1269.

Demes, KW, SS Bell & CJ Dawes. 2009. The effects of elevated phosphate concentrations on calcification in the green alga *Halimeda incrassata*. *Journal of Experimental Marine Biology and Ecology*. 374(2): 123-127.

NON-PEER REVIEWED PUBLICATIONS

Palen, W, T Sisk, SJ Green, & **KW Demes**. 2018. Ottawa's call for new science review says a lot about Trans Mountain safety claims. *The Narwhal* Opinion.

K Demes, HM Burt, & GC Murphy. 2017. Identifying, Evaluating and Catalyzing Clusters of Research Excellence. Society of Research Administrators International Paper Symposium.

Trebilco, R, **K Demes**, L Lee, B Keeling, N Sloan, H Stewart, A Salomon. 2014. Summary of Baseline Kelp Forest Surveys Within and Adjacent to Gwaii Haanas National Park Reserve, National

Marine Conservation Area Reserve and Haida Heritage Site, Haida Gwaii, British Columbia, Canada.
DFO Data report.

Stone, J, M Piscitelli, **K Demes**, S Chang, M Quayle, D Withers. 2013. Economic and biophysical impacts of oil tanker spills relevant to Vancouver, Canada: a literature review. Prepared for Vancouver Economic Commission 153 pp.

STUDENTS SUPERVISED

Ph.D. Committee Member for: Jenn Burt (SFU)

Undergraduate research mentor for: Jenny Strong (UBC), Nicole Stamnes (SFU), Christine Stevenson (SFU), Margot Webster (SFU)

INVITED TALKS

Demes, K & Mameni, M. 2019. Linking data across university silos to support data-driven research development strategies. BCNET Shared IT Services for Higher Education and Research.

Demes, K. 2019. EDI & Inclusive Excellence in Research. Presentation to GenomeBC Staff.

Locher, J, E Barsky, and **KW Demes**. 2018. Connecting the Data Dots to Identify Research Expertise in Large Universities. BCNET Shared IT Services for Higher Education and Research.

Demes, KW. Building collaborative, inter-institutional research programs. Department of Fisheries & Ocean research priority workshop. 2018.

Demes, KW. NCE Program Overview. Collaboration Strategies Workshop on Bioenergy and Bioeconomy. 2016.

Demes, KW, AK Salomon, B Keeling, J Burt. Detecting tipping points in northern latitude kelp forests. Joint Aquatic Sciences Meeting. May 2014.

Demes, KW “Risks associated with an oil spill in Vancouver”, DFO West Van Labs Seminar Series. Jan 2014.

Demes, KW “Abiotic regulation of sexual vs. vegetative reproduction in a clonal kelp” NSF-PASI Advanced Topics in Phycology Workshop, STRI, Panama.

Demes, KW “Kelp: Why Shape Matters” Moss Landing Marine Laboratories, Open House Public Seminar Series. April 2009.

CONTRIBUTED TALKS

May 2019 Canadian Assoc. Research Admin. Montréal, Québec

Oct 2017	Soc. Research Admin. Intl.	Vancouver, British Columbia
May 2014	Joint Aquatic Sciences Meeting	Portland, Oregon
Nov 2013	Western Society of Naturalists	Oxnard, California
Nov 2012	Western Society of Naturalists	Monterey, California
Nov 2012	UBC/UVic/SFU Eco-Evo Retreat	Brackendale, British Columbia
May 2012	Northwestern Algal Symposium	Vancouver, British Columbia
April 2012	Zoology Grad Student Symposium	Vancouver, British Columbia
Nov 2011	Western Society of Naturalists	Vancouver, Washington
July 2011	Phycological Society of America	Seattle, Washington
Nov 2010	Western Society of Naturalists	San Diego, California
April 2010	Northwestern Algal Symposium	Whidbey Island, Washington
Nov 2009	Western Society of Naturalists	Monterey, California
July 2009	Phycological Society of America	Honolulu, Hawaii

RECOGNITION & AWARDS

2017	Society of Research Administrators International, Best Paper of the Year
2013	Haldane Young Investigator's Prize (<i>Functional Ecology</i> , British Ecological Society)
2013	Hakai Postdoctoral Fellowship (\$120,000)
2012	UBC- Zoology Graduate Student Travel Award (\$500)
2012	UBC- ZGSA Research Symposium: Runner-up for Best Oral Presentation
2011	UW- Stephen and Ruth Wainwright Fellowship for Functional Morphology (\$1,600)
2010	NSERC-Biodiversity Research: Integrative Training/Education Travel Award (\$500)
2010	Best talk at 24 th Annual Northwestern Algal Symposium Cornet Bay, Washington
2010	NSERC- Biodiversity Research: Integrative Training/Education Travel Award (\$500)
2009	UBC Competitive Graduate Student Fellowship (\$91,000)
2008	Smithsonian Link Fellowship (Ft. Pierce, Florida) (\$6,500)
2007	USF Undergrad. Research Symposium: Best Oral Presentation- Natural Sciences

INSTITUTIONAL GRANTS DEVELOPED

2017	UBC Networks of Centres of Excellence LOIs (2 successful, highest nationally)
2017	UBC Canada 150 Research Chairs (4 awarded, highest nationally)
2016	UBC Canada Excellence Research Chairs (2 awarded, highest nationally)
2015	Hakai Institute Mitacs Cluster Grant: 100 Islands (\$720,000)

INSTITUTIONAL RESEARCH SUPPORT PROGRAMS DESIGNED & MANAGED

2018	Collaborative Research Mobility Awards (\$200k)
2017	Research Facility Support Grants (\$300k)
2017	Grants for Catalyzing Research Clusters: All disciplines (\$3.5M)
2016	Research Facility Support Grants (\$100k)
2016	Grants for Catalyzing Research Clusters: Performing & Creative Arts (\$100k)

2016 Grants for Catalyzing Research Clusters: Social Sciences & Humanities (\$300k)

TEACHING EXPERIENCE

2014	Instructor for Applied Community and Population Ecology (Graduate)	(SFU)
2012	Graduate teaching assistant for Experimental Biology of Invertebrates	(UBC)
2012	Graduate teaching assistant for Genetics, Ecology, and Evolution	(UBC)
2011	Graduate teaching assistant for Aquatic Ecology	(UBC)
2011	Graduate teaching assistant for Laboratory Investigations in Life Science	(UBC)
2010	Graduate teaching assistant for Non-vascular plants	(UBC)
2010	Graduate teaching assistant for Survey of the Algae	(UBC)
2008	Graduate teaching assistant for Biology of Marine Seaweeds	(MLML)
2008	Graduate teaching assistant/DiveMaster for Marine Science Diving	(MLML)

PEER REVIEWER OF ARTICLES AND APPLICATIONS FOR

<i>J. Phycology</i> (7)	<i>Proc. Roy. Soc. B.</i> (1)
<i>Functional Ecology</i> (1)	<i>Marine & Coastal Fisheries</i> (1)
<i>Marine Ecology Progress Series</i> (2)	<i>Ecology & Evolution</i> (1)
<i>J. of Experimental Marine Biology and Ecology</i> (1)	<i>National Science Foundation</i> (1)
<i>Ecology</i> (1)	<i>American Association of Underwater Sciences</i> (2)
<i>American J. Botany</i> (1)	

ACADEMIC OUTREACH AND SERVICE

2019	Judge for <i>Inter-Departmental Ecology of Aquatic Species</i> Symposium
2018-Present	CASRAI- SSH Impacts Working Group
2017-2018	WestGrid Nominations Committee
2017-2018	Lead, First Fridays: Professional development series for research development staff
2012-2013	Lead, Open House: Graduate student professional development series
2011-2012	Phycological Society of America Student Rep. to Publications Committee
2010-2011	Phycological Society of America Student Rep. to Grants and Fellowship Committee
2009-2010	Phycological Society of America Student Rep. to Election Committee
2008-2009	Student Body President- Moss Landing Marine Laboratories

CERTIFICATIONS

2014 SVOP (Small Vessel Operating Proficiency)
 2009 CAUS Scientific Diver (300+ research dives)
 2009 NAUI Dive Master
 2007 AAUS Scientific Diver

REFERENCES

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