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EDUCATION

PhD 2009 Zoology & Physiology, University of Wyoming, Laramie, WY
MS 2002 Zoology & Physiology, University of Wyoming, Laramie, WY
BA 1998 Biology & Marine Science, University of California, Santa Cruz, CA

PROFESSIONAL EXPERIENCE**Conference Coordinator, August 2015 – present**

6th International Sea Duck Conference, San Francisco, CA. Responsible for the coordination and planning of the scientific program on the conservation, ecology, and management of sea ducks.

Conference Coordinator, December 2014 – March 2016

7th North American Duck Symposium, Annapolis, MD. Local organizer responsible for planning and scheduling of the symposium's scientific program and social events for over 450 participants.

Conference Organizer and Planning Committee, April 2014 – September 2014

5th International Sea Duck Conference, Reykjavík, Iceland. Local organizer responsible for abstract submissions and conference proceedings, registration, field trip reservations, and coordinated with hotel and banquet services within a limited budget.

Research Scientist, June 2013 – April 2014

Long Point Waterfowl and Bird Studies Canada, Port Rowan, Ontario, Canada.
Research coordinator and analyst responsible for the management of the Avian Energetics Laboratory. Responsible for supervising technicians, students, and volunteers conducting research on multiple projects including weather-related waterfowl migration, movement patterns using satellite and radio telemetry, brood survival, and wildlife road-mortality.

Postdoctoral Research Fellow, January 2012 – May 2013

Program in Wildlife & Conservation Biology, Department of Natural Resources Science, University of Rhode Island. Comprehensive analysis of a large data set on the non-linear growth and survival of geese fed diets of varying forage quality (protein and lipid content) to simulate conditions in the Canadian Arctic.

Postdoctoral Research Fellow, January 2010 – December 2011

Fonds québécois de la recherche sur la nature et les technologies, Maurice Lamontagne Institute, Fisheries and Oceans Canada and Université du Québec à Rimouski. Led a research program to evaluate the impact of sea duck predation on mussel aquaculture. Evaluated methods of exclusion to prevent or reduce sea duck predation on mussel farms and develop conservation-friendly and cost-effective solutions for mussel growers.

Graduate Research Assistant, Doctoral, January 2003 – August 2009

Department of Zoology & Physiology, University of Wyoming. Dissertation research evaluated the energy balance, threshold prey densities, and habitat requirements of wintering sea ducks. Evaluated the metabolic relationships among all diving birds including alcids, cormorants, penguins, and diving ducks.

Graduate Research Assistant, Masters, January 1999 – December 2002

Department of Zoology & Physiology, University of Wyoming. Master's research examined the nutritional and energy value of native and exotic clams for diving ducks in San Francisco Bay.

PROFESSIONAL SERVICE AND COMMUNITY OUREACH

Special Events Instructor, Mad Science of San Diego, California, 2015 – present
After school and special events science instructor for elementary and middle school children for fun, hands-on educational programs on topics from rocketry to chemical reactions and matter as well as biology, earth science, physics.

Shellfish Department, Town of Chatham, Massachusetts, 2012 – 2013.
Wildlife consultant on the impacts of sea duck predation on mussel aquaculture.

NASA Space Grant, Women in Science & Engineering Workshop: *Careers and Techniques in Wildlife Biology*, May 2005 – 2008. Workshop on the opportunities and careers in wildlife biology and discuss the techniques used to conduct wildlife research.

Elkhorn Slough Safari Nature Tours, June 1995 – November 1998
Naturalist and tour guide providing information on the natural history of the area, and identification and ecology of marine mammals (sea otters, harbor seals) and migratory waterbirds (seabirds, shorebirds, waterfowl), as well as wetland and estuarine ecology.

PUBLICATIONS (*peer reviewed*)

Zydelis, R. and **S.E. Richman** (2015) Foraging ecology, behavior, and energetics of sea ducks *in Ecology and Conservation of North American Sea Ducks* (eds. D. Dirkson, J.P. Savard, J. Eadie, and D. Esler). *CRC Press, Studies in Avian Biology*.

Richman, S.E., Leafloor, J.O., Karasov, W.H. and S.R. McWilliams (2014) Ecological implications of reduced forage quality and survival of sympatric geese. *Journal of Animal Ecology* 84(1):284-298.

Lovvorn, J.R., De La Cruz, S.E.W., Takekawa, J.Y., Shaskey, L.E., and **S.E. Richman** (2013) Niche partitioning, threshold food densities, and species abundance in diminishing habitats for diving ducks. *Marine Ecology Progress Series* 476:251-268.

Guillemette, M., **Richman, S.E.**, Portugal, S.J., and P.J. Butler (2012) Behavioural compensation reduces energy expenditure during migration hyperphagia in a large bird. *Functional Ecology* 26(4):876-883.

Richman, S.E. and J.R. Lovvorn (2011) Effects of air and water temperature on resting metabolism of auklets and other diving birds. *Physiological and Biochemical Zoology* 84(3): 316-332. *This article was featured on journal cover and in a news release to Science Daily.*

Richman, S.E. and J.R. Lovvorn (2009) Predator size, prey size, and threshold food densities of diving ducks: does a common prey base support fewer large animals? *Journal of Animal Ecology* 78:1033-1042.

Lovvorn, J.R., Grebmeier, J.M., Cooper, L.W., Bump, J.K, and **S.E. Richman** (2009) Delineating Marine Protected Areas for threatened eiders in a critically changing Bering Sea. *Ecological Applications* 19(6):1596-1613.

Richman, S.E. and J.R. Lovvorn (2008) Costs of diving by wing and foot propulsion in a sea duck, the white-winged scoter. *Journal of Comparative Physiology B* 178:321-332.

Richman, S.E. and J.R. Lovvorn (2004) Relative foraging value to lesser scaup ducks of native and exotic clams from San Francisco Bay. *Ecological Applications* 14(4):1217-1231.

Richman, S.E. and J.R. Lovvorn (2003) Effects of clam species dominance on nutrient and energy acquisition by spectacled eiders in the Bering Sea. *Marine Ecology Progress Series* 261:283-297.

Lovvorn, J. R., **Richman, S.E.**, Grebmeier, J.M. and L.W. Cooper (2003) Diet and body condition of spectacled eiders wintering in pack ice of the Bering Sea. *Polar Biology* 26:259-267.

MANUSCRIPTS IN REVIEW OR PREPARATION

Barney, T.S., **Richman, S.E.**, Badzinski, S. and S.A. Petrie (*In prep*) Availability and nutritional quality of waste corn for waterfowl near Long Point, Ontario. Condor

Weaver, K.A.H., **Richman, S.E.**, Palumbo, M., Dyson, M. Barney, T.S., Finger, T. Schummer, M. and S.A. Petrie. (*In prep*) Waterfowl and Wetlands of the Lake St. Clair Region: Present conditions and future directions for conservations.

TECHNICAL REPORTS

Richman, S.E. (2011) Sea duck predation on mussel farms: development of non-lethal methods of exclusion. Canadian Aquaculture Research & Development Review 2011.

Richman, S.E. and J.R. Lovvorn (2007) Cassin's Auklet: Protocol for Collection, Transport, and Captive Husbandry, Oiled Wildlife Care Network, University of California, Davis.

PATENT

Device to impede bird predation on mussel aquaculture. Provisional patent filed in Canada and United States.

TEACHING EXPERIENCE

Lecturer (*University of Wyoming*)

Comparative and Environmental Physiology, ZOO 4190/5190, Spring 2005, 2006, 2008

Physiology of diving, thermoregulation and energetics of marine vertebrates.

General Biology, LIFE 1010, Fall 2006, 2007, 2008

Hypothesis testing and the scientific method, Medelian genetics, and biochemistry.

Avian species session: Feeding behavior of sea birds.

Ornithology, ZOO 4350/5350, Spring 2006, 2007, 2008, 2009

Physiological ecology of diving in seabirds.

Teaching Assistant and Laboratory Instructor (*University of Wyoming*)

Animal Biology, LIFE 2020, Fall 1999 – 2004, 2006

Comparative and Environmental Physiology, ZOO 4190/5190, Spring 2005, 2007, 2008

Mammalian Physiology, ZOO 3115, Fall 2004

General Biology, LIFE 1010, Fall 2000, 2001, 2003, 2006 - 2008

Wetland Ecology, ZOO 4550, Fall 2005, 2007

Biology of Marine Mammals and Seabirds, Summer Field Course, Summer 1998

INVITED SEMINARS

Richman, S.E. and J.R. Lovvorn, June 2016. *The implications of body size on the carrying capacity of habitat for diving ducks: does a common prey base support fewer large predators?* University of California, Davis, CA.

Richman, S.E., March 2012. *Sea duck predation on mussel farms: responding to an escalating conflict.* Massachusetts Audubon's Wellfleet Bay Wildlife Sanctuary, Cape Cod, MA.

Richman, S.E. and J.R. Lovvorn, March 2011. *Determining habitat quality for sea ducks foraging on infaunal clams: does a common prey base support fewer large predators?* Dalhousie University, Halifax, Nova Scotia.

Richman, S.E. and J.R. Lovvorn, December 2010, *Implications of body size to the foraging energetics of sea ducks.* Maurice Lamontagne Institute, Fisheries and Oceans Canada, Mont-Joli, Québec.

PRESENTATIONS AT PROFESSIONAL MEETINGS (Last 10 years)

- Richman, S.E.**, S.R. McWilliams, J.O. Leafloor, W.H. Karasov (2013) *Influence of forage quality on gosling growth and survival*. North American Duck Symposium, Memphis, TN.
- McWilliams, S.R., **Richman, S.E.**, McKinney, A.R., Williams, C.K., and B. Dugger (2013) *Estimated daily energy expenditure of waterfowl: allometric models should work but may not*. Special Session: Estimating Habitat Carrying Capacity for Waterfowl: Considerations, Pitfalls, and Improvements, North American Duck Symposium, Memphis, TN.
- Lovvorn, J.R., S.E.W. De La Cruz, J.Y. Takekawa, L.E. Shaskey, V.K. Poulton, and **S.E. Richman** (2013) *Niche partitioning, threshold food densities, and species abundance in diminishing habitats for diving ducks*. North American Duck Symposium, Memphis, TN.
- Richman, S.E.**, S.R. McWilliams, J.O. Leafloor, W.H. Karasov (2013) *Influence of forage quality on gosling growth and survival*. Society for Integrative and Comparative Biology, San Francisco, CA.
- Richman, SE.**, S.R. McWilliams, J.O. Leafloor, W.H. Karasov (2012) *Growing Fast and Dying Young: Effects of forage quality on growth and survival of Arctic geese*. North American Ornithological Congress, Vancouver, British Columbia, Canada (Poster)
- Richman, S.E.** and J.R. Lovvorn (2012) *Effects of air and water temperature on resting metabolism of auklets and other diving birds*. 40th Annual meeting of the Pacific Seabird Group, Turtle Bay Resort, North Shore, Hawai'i (Oral)
- Richman, S.E.**, E. Varennes, M. Guillemette, J. Bonardelli, and S.A. Hanssen (2011) *Sea duck predation on mussel farms: developing conservation-friendly and cost-effective solutions for mussel growers*. 4th International Sea Duck Conference, Seward, Alaska (Oral)
- Varennes, E., **S.E. Richman**, and M. Guillemette (2011) *Intake rates and prey size selection of captive common eiders foraging on blue mussels*. 4th International Sea Duck Conference, Seward, Alaska
- Lovvorn, J.R., S.E.W. De La Cruz, J.Y. Takekawa, L.E. Shaskey, V.K. Poulton, and **S.E. Richman** (2011) *Niche partitioning, threshold food densities, and species abundance in diminishing habitats for diving ducks*. 4th International Sea Duck Conference, Seward, Alaska
- Richman, S.E.**, E. Varennes, M. Guillemette, J. Bonardelli, and S.A. Hanssen (2011) *Sea duck predation on mussel farms: Developing conservation-friendly and cost-effective solutions for mussel growers*. Aquaculture Canada 2011, Québec City, Québec (Oral)
- Lovvorn, J.R., J.M. Grebmeier, L.W. Cooper, J.K. Bump, and **S.E. Richman** (2010) *Delineating marine protected areas for threatened eiders in a climatically changing Bering Sea*. First World Seabird Conference, Victoria, British Columbia
- Richman, S.E.** and J.R. Lovvorn (2008) *Effects of body size on the carrying capacity of habitat for sea ducks: does a common prey base support fewer large animals?* North American Sea Duck Conference, Québec City, Québec (Oral)
- Lovvorn, J.R., J.M. Grebmeier, L.W. Cooper, J.K. Bump, and **S.E. Richman** (2008) *Delineating marine protected areas for threatened eiders in a climatically changing Bering Sea*. North American Sea Duck Conference, Québec City, Québec
- Richman, S.E.** and J.R. Lovvorn (2008) *Effects of body size on the carrying capacity of habitat for sea ducks*. 35th Annual Meeting of the Pacific Seabird Group, Blaine, Washington (Oral)
- Richman, S.E.** and J.R. Lovvorn (2007) *On thin ice: reduction of dive costs for Spectacled Eiders wintering in the Bering Sea*. 34th Annual Meeting of the Pacific Seabird Group, Monterey, California, Best Student Paper, Travel Award (Oral)

- Richman, S.E.** and J.R. Lovvorn (2007) *Cost of diving by wing and foot propulsion in a sea duck, the white-winged scoter*. 125th Stated Meeting of the American Ornithologists Union, Laramie, Wyoming (Oral)
- Lovvorn, J.R., J.M Grebmeier, L.W. Cooper, **S.E. Richman**, J.K. Bump, and B.I. Sirenko (2006) *Modeling the energetics of Spectacled eiders during long-term change in ice and benthos of the Bering Sea*. 33rd Annual Meeting of the Pacific Seabird Group, Girdwood, Alaska
- Richman, S.E.** and J.R. Lovvorn (2005) *On thin ice: foraging energetics of Spectacled Eiders wintering in the pack ice of the Bering Sea*. Second North American Sea Duck Conference, Annapolis, Maryland, Travel Award (Oral)
- Lovvorn, J.R., J.M. Grebmeier, L.W. Cooper, **S.E. Richman**, J.K. Bump, and B.I. Sirenko (2005) *Modeling the energetics of Spectacled eiders during long-term change in ice and benthos of the Bering Sea*. Second North American Sea Duck Conference, Annapolis, Maryland
- Richman, S.E.** and J.R. Lovvorn (2005) *On thin ice: foraging energetic of Spectacled Eiders wintering in the pack ice of the Bering Sea*. Third North American Duck Symposium, Sacramento, California, Best Student Paper, Travel Award (Oral)
- Richman, S.E.** and J.R. Lovvorn (2003) *Do scaup and scoters prefer foreign food in San Francisco Bay?* 30th Annual Meeting of the Pacific Seabird Group, Parksville, British Columbia, Best Student Paper, Travel Award (Oral)

MEDIA AND INTERVIEWS

- La semaine verte, Mytiliculture contestée par la prédation de canards de mer (English translation: Mussel aquaculture challenged by sea duck predation in Baie des Chaleurs, Québec)*. Radio-Canada television series on nature and agricultural issues in Québec, December 2011
- Gaspésie-Les Îles: les mariculteurs assaillis par des pilleurs (English translation: Sea farmers attacked by looters)*. Radio Canada. Interviewed by Line Danis on 22 July 2011
- La prédation par les canards se transforme en crise (English translation: Predation by ducks turns into crisis)*. La Radio des Iles de la Madeleine, Le Son de la Mer, by Hélène Fauteux on 5 July 2011
- ScienceDaily*, University of Chicago Press Journals (5 May 2011) Small sea birds hold heat rather than cranking up the furnace. <http://www.sciencedaily.com/releases/2011/05/110502163420.htm>
- Eider Lab*, featured segment on Ducks, Dogs and Decoys, D3TV television series with Capt. Jeff Coats of Pitboss Waterfowl. Filming and interview in August 2010 and aired June 2011

RESEARCH FUNDING (Grant source, title, years active)

Catalyst Fund, Natural Resource Damage Fund, Special Session on 'Planning Restoration and Recovery of Sea Ducks Injured in Coastal Oil Spills'	\$ 46,487
Wildlife Habitat Canada, Long Point Waterfowl's Lake St. Clair Initiative, 2012–14	\$ 50,000
Wildlife Habitat Canada, Habitat use and survival of Wood Ducks, 2012 – 14	\$ 40,000
La Société de développement de l'industrie maricole inc. (SODIM), Development of an innovative method to reduce sea duck predation on mussel farms, 2011– 2013	\$ 44,000
Margaret and Sam Kelly Ornithological Research Fund, Department of Veterinary Science, Captive husbandry of Cassin's auklets, 2005 – 07	\$ 3,500

Delta Waterfowl Foundation, *Foraging energetics of Spectacled Eiders in the pack ice of the Bering Sea*, 2002. \$ 8,000

Charles H. Bell Research Award, Delta Waterfowl Foundation, *Lesser Scaup Foraging on native and exotic clams in San Francisco*, 2000 – 2001. \$ 15,000

HONORS AND AWARDS

- 2011 Cover Photo, *Physiological and Biochemical Zoology* 84(3), University of Chicago Press
- 2010 Postdoctoral Fellowship, Programme de bourses d'excellence pour étudiants étrangers, Fonds québécois de la recherche sur la nature et les technologies
- 2008 Dr. George E. Menkens Memorial Scholarship, \$12,000
- 2008 Distinguished Service Award for excellence in teaching and exemplary service to the Life Sciences Program, University of Wyoming
- 2008 Board of Visitors Extraordinary Merit Award for extraordinary service to the Department of Zoology & Physiology, University of Wyoming
- 2007 Best Student Paper, 34th Annual Meeting of the Pacific Seabird Group, Monterey, CA.
- 2005 Travel Award, Second North American Sea Duck Conference, Annapolis, Maryland
- 2004 Best Student Paper, Third North American Duck Symposium, Sacramento, California
- 2004 Travel Award, California Waterfowl Association, Sacramento, California
- 2003 Best Student Paper, Annual Meeting of the Pacific Seabird Group, Parskville, BC.
- 1998 Academic honors, Marine Biology and Biology, University of California, Santa Cruz

STUDENTS MENTORED

Matthew Dyson, Masters student, Long Point Waterfowl and Western University. *Habitat selection and survival of wood ducks at Long Point Ontario.*

Elisabeth Varennes, Doctoral student, Département de Biologie, Chimie et Géographie, Université du Québec à Rimouski, January 2010 to present, *Foraging behavior of the common eider on intertidal blue mussels.*

Anouck Viain, Doctoral student, Département de Biologie, Chimie et Géographie, Université du Québec à Rimouski, January 2010 to present, *Molting phenology and growth rates for captive common eider.*

Frankie Jean-Gagnon, NSERC Undergraduate Research Student, Département de Biologie, Chimie et Géographie, Université du Québec à Rimouski, May to August 2011. *Sea duck predation on mussel aquaculture in Atlantic Canada: determining areas of potential conflict, timing and distribution of sea ducks in relation of aquaculture sites using satellite telemetry and GIS mapping.*

Marie-Christine Frénette, NSERC Undergraduate Research Student, Département de Biologie, Chimie et Géographie, Université du Québec à Rimouski, May to August 2011. *Determining size-structure, density, and nutrient composition of mussel beds at Métis Point, a primary molting site for eiders and scoters on the St. Lawrence Estuary.*

Heather Julien, Department of Zoology and Physiology, University of Wyoming, Undergraduate Honors Research, 2007. *Stroke rates and diving behavior of White-winged scoters.*

PROFESSIONAL MEMBERSHIPS

Ecological Society of America
Ornithological Society of North America
Pacific Seabird Group (Representative, Non-Pacific States)
The Wildlife Society