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# CURRICULUM VITAE

## Derek Skillings

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### General Information

ImmunoConcEpT Lab  
University of Bordeaux/CNRS  
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US Citizen

### Current Position

Postdoctoral Researcher (2016 – Present) – University of Bordeaux/CNRS  
ERC funded project (€1,454,000) on Immunity, Development and the Microbiota (IDEM):  
Understanding the Continuous Construction of Biological Identity

### Education

Ph.D. Philosophy. The Graduate Center, City University New York (2016)

Dissertation: *Aspects of Biological Explanation*

Advisor: Peter Godfrey-Smith

Committee: Massimo Pigliucci, David Papineau, Catherine Wilson, Justin Garson

Ph.D. Zoology. University of Hawai'i at Mānoa (2012)

Dissertation: *Islands, Archipelagos, and Beyond: Population Genetics and Phylogeography of Hawaiian Coral Reef Echinoderms*

Advisor: Rob Toonen

Committee: Brian Bowen, Charles Birkeland, Andy Taylor, Ron Bontekoe

M.A. Philosophy. University of Hawai'i at Mānoa (2012)

Advisor: Ron Bontekoe

B.A. Open Studies: Biology, Chemistry, Philosophy. Minnesota State University, Mankato (2006)

### Areas of Specialization

Philosophy - Philosophy of Biology, Philosophy of Science

Biology – Evolutionary Ecology, Phylogenetics

### Areas of Competency

Philosophy - Environmental Ethics, Chinese and Indian Philosophy, American Pragmatism

Biology - Conservation Biology, Marine Biology, Invertebrate Biology, Population Genetics

## Publications

### Philosophy

- 17) “Holobionts and the Ecology of Organisms – Multi-Species Communities or Integrated Individuals?” *Biology & Philosophy*. (2016) 31(6):875-892. doi:10.1007/s10539-016-9553-z
- 16) “Mechanistic Explanation of Biological Processes” *Philosophy of Science* (2015) 82: 1139-1151.

### Biology

- 15) “The DNA of Coral Reef Biodiversity: Predicting and Protecting Genetic Diversity of Reef Assemblages” Selkoe KA, Gaggiotti OE, Treml EA, Wren JLK, Donovan MK, Andrews KA, Baums I, Bird CE, Bolick H, Bowen B, Coleman R, Craig MT, Daly-Engel TS, DiBattista JD, Eble J, Fernandez-Silva I, Franklin EC, Gaither MR, Iacchei M, Rocha LA, Skillings D, Santos SR, Timmers M, Wedding L, Williams GJ, Whitney NM, Toonen RJ. *Proc. R. Soc. B* (2016) 283: 20160354.
- 14) “An assessment of shallow and mesophotic reef brachyuran crab assemblages on the south shore of Oahu, Hawaii.” Hurley KC, Timmers MA, Godwin LS, Copus JM, Skillings DJ, Toonen RJ *Coral Reefs*. (2015) DOI: 10.1007/s00338-015-1382-z.
- 13) “Emergent Patterns of Population Genetic Structure for a Coral Reef Community” Selkoe KA, Gaggiotti OE, Andrews KA, Bernal MA, Bird CE, Bolick H, Baums I, Coleman R, Concepcion GT, Craig MT, DiBattista JD, Eble J, Fernandez-Silva I, Gaither MR, Iacchei M, Polato NR, Rivera MA, Rocha LA, Skillings DJ, Timmers M, Szabo Z, Bowen BW, Toonen RJ. *Molecular Ecology* (2014) DOI:10.1111/mec.12804.
- 12) “Comparative population structure of two edible Indo-Pacific coral reef sea cucumbers (Echinodermata: Holothuroidea)” Skillings DJ, Bird CE, Toonen RJ. *Bulletin of Marine Science* (2014) 90(1). DOI: 10.5343/bms.2013.1001.
- 11) “The Origins Of Tropical Marine Biodiversity” Bowen BW, Rocha LA, Bird CJ, Skillings DJ, Eble JA, DiBattista JD, Craig MT, Toonen RJ. *Trends in Ecology and Evolution* (2013).
- 10) “After continents divide: Comparative phylogeography of reef fishes from the Red Sea and Indian Ocean” DiBattista JD, Berumen ML, Gaither MR, Rocha LA, Eble JA, Choat JH, Craig MT, Skillings DJ, Bowen BW. *Journal of Biogeography* (2013).
- 9) “There’s no place like home: Crown-of-thorns outbreaks in the Central Pacific are regionally derived and independent events” Timmers MA, Bird CE, Skillings DJ, Smouse P, Toonen RJ. *PLoS ONE* (2012) 7(2).
- 8) “Sympatric speciation in the post “Modern Synthesis” era of evolutionary biology” Bird CE, Fernandez I, Skillings DJ, Toonen RJ. *Evolutionary Biology* (2012) 39:158-180.
- 7) “Molecular delineation of species in the coral holobiont” Stat M, Baker A, Bourne D, Correa A, Forsman Z, Huggett M, Pochon X, Skillings D, Starger C, Toonen RJ, van Oppen M, Gates R. *Advances in Marine Biology* (2012). <http://dx.doi.org/10.1016/B978-0-12-394282-1.00001-6>.
- 6) “Defining boundaries for ecosystem-based management: A multispecies case study of marine connectivity across the Hawaiian Archipelago” Toonen RJ, Andrews K, Baums I, Bird CE, Concepcion G, Daly-Engel T, Eble J, Fauci A, Gaither M, Iacchei M, Puritz J, Schultz J, Skillings DJ, Timmers M, Bowen B. *Journal of Marine Biology*. (2011) ID#460173, 13 pp.
- 5) “Gateways to Hawai‘i: genetic population structure of the tropical sea cucumber *Holothuria atra*” Skillings DJ, Bird CE, Toonen RJ. *Journal of Marine Biology*, (2011) ID# 783030, 16 pp.

- 4) “Where have all the larvae gone? Patterns of connectivity in the Hawaiian Archipelago” Toonen RJ, Bird CE, Eble J, Faucci A, Concepcion G, Andrews K, Skillings DJ, Iacchei M, Baums I, Bowen BW. in *Diving for Science. Proceedings of the American Academy of Underwater Sciences* (2010) Dauphin Island, AL: AAUS.
- 3) “It’s just a flesh wound: non-lethal sampling for conservation genetics studies” Skillings DJ, Toonen RJ. (in *Diving for Science. Proceedings of the American Academy of Underwater Sciences* (2010) Dauphin Island, AL: AAUS.
- 2) “Reconciling ecosystem-based management and focal resource conservation in the Papahānaumokuākea Marine National Monument” Kittinger JN, Skillings DJ, Carvalho KK, Reeve LLN, Hutchinson M, Cullison K, Shackeroff J, Chow M, Lemus J. *Marine Sanctuaries Conservation Series* (2009) ONMS-09-04. NOAA, Office of National Marine Sanctuaries.
- 1) “Laboratory culture of the soft-coral *Carijoa riisei*” *Journal of Young Investigators*. (2008) 15:8.

### **Popular Press**

“Venn Life” Aeon Magazine. <https://aeon.co/forthcoming>, Oct 2017.

### **Projects in Preparation or Under Review (papers under review/revision are available upon request)**

“Top-down and bottom-up causal claims in microbiome research” w/ Maureen O’Malley – Under review at *Perspectives in Science*

“Integration and Discordance in Multilineage Systems.” Invited article in prep for a special issue of *PTPBio*

“Microbiomes and Hologenomes” w/ Kasia Hooks. Invited article in prep for Elsevier’s *Encyclopedia of Ecology*

“Reorienting Scientific Explanation – The Case from Robustness in Biological Systems.” In revision

“From an Entangled Bank – Translating and Interpreting Causation in Biology.” In revision

“A Framework for Individuation and Individuality in Biology.” In prep.

“Complexity, Organization and Life in the Philosophy of Sir Kenelm Digby.” In revision

“The Emptiness of the Species Problem – A Buddhist Approach to the Metaphysics of Species.” In revision

“Contrasting phylogeographic patterns in two Pacific brittle stars, *Ophiocoma erinaceous* and *Ophiocoma pica*.” w/ Matt Iacchei and Robert Toonen. In revision

### **Teaching Experience**

#### **Adjunct Instructor**

Brooklyn College (2013-2016)

Courses taught: Reasoning, Moral Issues in Business, Introduction to Philosophy, Environmental Ethics, Scientific Revolutions

University of Hawai‘i at Mānoa (2012)

Courses taught: Marine Biology Thesis Capstone

#### **Lab Instructor**

University of Hawai‘i at Mānoa (2006-2007)

Labs taught: Marine Biology, Invertebrate Zoology

#### **Teaching Assistant**

Minnesota State University, Mankato (2005-2006)

Labs: Animal Diversity, Parasitology

#### **Graduate Seminar**

University of Hawai‘i at Mānoa (2007)

Developed and co-taught (with Andy Taylor) graduate seminar on Darwin’s *On the Origin of Species*

## Presentations and Invited Talks

### **2017**

Biological Individuality. 3<sup>rd</sup> Bordeaux-San Sebastian Workshop on Philosophy of Biology. Bidart, Nov 2017.

Holobionts and Individuality. Interdisciplinary Workshop on Holobionts. Bordeaux, Nov 2017.

A Framework for Individuation and Individuality in Biology. University of Geneva (invited talk).

Lineage Integration and Units of Selection. Australian National University (invited talk).

What are Holobionts? - A Case Study for Hard Problems about Biological Individuality. Can Biological Practice Inform Metaphysics Workshop. Cologne (invited talk).

The Evolution of Host-Microbiome Systems. Immunoconcept Seminar. Bordeaux.

Causal Reasoning in Biology. 2<sup>nd</sup> Bordeaux-San Sebastian Workshop on Philosophy of Biology. Bordeaux.

Making Sense of Lineage Integration and Discordance in Host-Microbe Symbioses. Discordance in the Age of Species Workshop. University of Utah.

### **2016**

Immunity, Development, and the Microbiota. Philosophy of Science Association. (poster).

Holobionts and the Ecology of Organisms. City College, Biology Department (invited talk).

### **2015**

Holobionts and the Ecology of Organisms. 2015 PBDB Workshop (invited talk).

Complexity, Organization and Life in the Philosophy of Sir Kenelm Digby. International Society for the History, Philosophy and Social Studies of Biology.

Ways to be Robust. International Society for the History, Philosophy and Social Studies of Biology.

### **2014**

Mechanistic Explanation of Biological Processes. Philosophy of Science Association.

### **2013**

A Process Focused Approach to the Species Problem. International Society for the History, Philosophy and Social Studies of Biology.

### **2011**

Gateways to Hawaii—Genetic Population Structure of the Tropical Sea Cucumber *Holothuria atra*. Pacific Science Inter-Congress.

### **2010**

Gateways to Hawaii—Genetic Population Structure of the Tropical Sea Cucumber *Holothuria atra*. Western Society of Naturalists Annual Meeting

Gateways to Hawaii—Genetic Population Structure of the Tropical Sea Cucumber *Holothuria atra*. Evolution Annual Meeting.

## 2009

Using the Sea Cucumber *Holothuria atra* to test Hawaii Connectivity Hypotheses. Pacific Science Interconference (Invited talk and poster).

Using the Sea Cucumber *Holothuria atra* to test Hawaii Connectivity Hypotheses. International Biogeography Conference (poster).

## 2008

Using Population Genetics for Marine Conservation – The Story of the Teatfish and the Lollyfish. Minnesota State University, Mankato (invited talk).

Two Sea Cucumbers (*Holothuria atra* and *Holothuria whitmaei*) show links between Hawaii and Johnston Atoll. 2008 Hawaii Conservation Conference (invited talk).

Genetic populations structure of a widely distributed tropical species of sea cucumber, *Holothuria (Halodeima) atra*. 11th International Coral Reef Symposium (poster).

Genetic Population Structure of the lollyfish and the black teatfish in Hawaii. Tester Symposium – Honolulu, Hawaii.

## Research Experience

Research Assistant (2012-2013) CUNY Graduate Center

Graduate Research Assistant (2007-2012) Hawai'i Institute of Marine Biology (HIMB)

Submersible Biologist (2011) – Hawai'i Undersea Research Laboratory

Research Diver (2007-2009) - NOAA Ship Hi'ialakai Papahānaumokuākea Marine National Monument Research Expedition(s)

## Awards and Honors

Travel Funds for Workshop on Reconciling and Explaining the Success of Science - \$4,000

Mellon Fellowship (2012-2016) - \$30,000 at \$6,000 per year.

CUNY Enhanced Chancellor's Fellowship (2012-2016) - \$90,000 at \$18,000 per year.

The National Academy of Sciences Grant for Travel (2011) \$1,800

University of Hawai'i at Manoa Jesse D. Kay Research Grant for Graduate Research (2010) - \$10,000

University of Hawai'i at Mānoa Arts and Sciences Student Research Award Grant (2009) - \$2,000

Pacific Science Intercongress Student Travel Grant (2009) - \$2,000

National Academy of Science Sackler Colloquia Student Travel Grant (2009) \$600

International Biogeography Society Travel Grant (2009) \$500

National Science Foundation Graduate Research Fellowship Honorable Mention (2006)

Minnesota State University, Mankato Biology Department \$1,000 Grant for Undergraduate Research (2006)

National Science Foundation Research Experience for Undergraduates Traineeship in Marine Biology and Population Genetics (2005)

Minnesota State University, Mankato Undergraduate Research Grants Two \$1,000 dollar grants for research in biology and philosophy (2005)

Minnesota State University, Mankato – Alliss Foundation Scholarship (2004-2005)

### **Professional Service**

Journal Referee: European Journal for Philosophy of Science, Biology & Philosophy, Marine Ecology Progress Series, Journal of Marine Biology, Journal of Heredity, Bulletin of Marine Science, Conservation Genetics

Workshop Organizer – Interdisciplinary Workshop on Holobionts, <https://www.immuconcept.org/holobiont-workshop/> (Bordeaux, Nov 2017)

Workshop Organizer - Bordeaux-Geneva Colloquium in Philosophy of Biology (Geneva, Oct 2017)

CUNY Curriculum Committee (2016)

Session Organizer - Aspects of Biological Organization. International Society for the History, Philosophy and Social Studies of Biology (2015)

Seminar Organizer - Minorities and Philosophy (MAPs) Seminar Series (2015)

CUNY Philosophy Graduate Program Admissions Committee (2015)

University of Hawaii Zoology Department Graduate Student Representative (2007-2008)

Recent Advances in Conservation Genetics, a short course co-hosted by the Laboratory of Genomic Diversity and Hawaii Institute of Marine Biology - January 7-20 (2007)

### **Media**

Hidden Hawaii. National Geographic National Parks Collection. National Geographic Channel.

Hawai'i: A Long Story Short. Nature Reel History. <https://vimeo.com/63803633>

### **Recommendation Letter Writers**

- 1) Peter Godfrey-Smith - University of Sydney. email: [p.godfrey.smith@gmail.com](mailto:p.godfrey.smith@gmail.com)
- 2) Massimo Pigliucci – The Graduate Center, CUNY; City College. email: [mpigliucci@gc.cuny.edu](mailto:mpigliucci@gc.cuny.edu)
- 3) Maureen O'Malley – University of Bordeaux/IDEX. email: [maureen.omalley@u-bordeaux.fr](mailto:maureen.omalley@u-bordeaux.fr)