

KAREN GRACE V. BONDOC, DR. RER. NAT., POSTDOCTORAL ASSOCIATE

Environmental Biophysics and Molecular Ecology Laboratory, Department of Marine and Coastal Sciences
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RESEARCH INTERESTS

Marine microbiology and oceanography, Behavioral ecology, Biophysics, R programming, Statistical modeling, Marine toxins, Harmful algal blooms, Marine invertebrate ecology, Science communication

EDUCATION

- Dr. rer. nat. (PhD in Natural Sciences), *summa cum laude*** Jan 2013 –
Friedrich-Schiller-Universität Jena, Germany Dec 2017
Thesis: Directed motility of benthic diatoms
Supervisor: Prof. Dr. Georg Pohnert
- M.Sc. Marine Science** Jun 2007 –
University of the Philippines Diliman, Philippines Apr 2012
Thesis: Chemical defense of holothurians by saponins (triterpene glycosides)
Supervisors: Dr. Marie Antonette Juinio-Meñez, Dr. Lourdes J. Cruz
- B.Sc. Biology, *cum laude*** Jun 2003 –
Pamantasan ng Lungsod ng Maynila, Philippines Mar 2007
Thesis: Radioprotective potential of dilang-baka (*Opuntia ficus-indica*) on irradiated mice
(*Mus musculus* L.)
Supervisor: Dr. Eileen Vitug

PROFESSIONAL APPOINTMENTS

- Postdoctoral Associate** Sep 2018 –
Rutgers University, New Jersey, USA Present
Determine the impact of ocean turbulence to phytoplankton-virus interaction
Supervisors: Kay Bidle, Heidi Fuchs, Bob Chant
- Postdoctoral contract (job order basis)** Mar 2018
The Marine Science Institute, University of the Philippines Diliman, Philippines
Publication writing
Supervisor: Dr. Marie Antonette Juinio-Meñez
- Wissenschaftliche Hilfskraft** Nov 2016 –
Friedrich-Schiller-Universität-Jena, Germany Jan 2017
Publication and thesis writing
- Doctoral contract** Aug 2016 –
Max-Planck-Gesellschaft, Jena, Germany Oct 2016
Continue experiments relating to the Ph.D. thesis and publication writing
- Wissenschaftliche Mitarbeiter** Jan 2016 –
Friedrich-Schiller-Universität-Jena, Germany July 2016
Continue experiments relating to the Ph.D. thesis and publication writing
- Senior Research Assistant** Jul 2009 –
The Marine Science Institute, University of the Philippines Diliman, Philippines Dec 2012
Develop and optimize Bioadsorption Toxin Tracking (BATT) for monitoring paralytic shellfish toxins and domoic acid for field trials
Supervisors: Dr. Rhodora V. Azanza, Dr. Lourdes J. Cruz, Dr. Elsie Jimenez
- Research Assistant** Apr 2008 –
The Marine Science Institute, University of the Philippines Diliman, Philippines Dec 2008
Develop extraction and quantification methods for sea cucumber saponins; Compare effect of ontogeny and rearing environments on saponin production of *Holothuria scabra*
Supervisor: Dr. Marie Antonette Juinio-Meñez

Graduate Assistant

The Marine Science Institute, University of the Philippines Diliman, Philippines
Assist the Deputy Director of Instruction (DDI) on matters regarding graduate students (e.g., records, events, meetings)

Sep 2007 –

Apr 2008

PUBLICATIONS

Peer-reviewed

6. **Bondoc, K.G.V.***, Lembke C.*, Germerodt, S., Lang, S., Schuster, S., Vyverman, W., Pohnert G. Decision-making by diatoms searching for nutrients and pheromones. *ISME J*, accepted. (*co-first authors)
5. **Bondoc, K.G.V.***, Lembke C.*, Vyverman, W., Pohnert G. (2018) Selective chemoattraction of the benthic diatom *Seminavis robusta* to phosphate not to inorganic nitrogen sources contributes to biofilm structuring. *MicrobiologyOpen* e694. (*co-first authors)
4. Svennson, C.-M., **Bondoc, K.G.V.**, Pohnert, G., Figge, M.C. (2017) Segmentation of clusters by template rotation expectation minimization. *Comput Vis Image Und* 154:64-72.
3. **Bondoc, K.G.V.**, Lembke C., Vyverman, W., Pohnert G. (2016) Searching for a mate: the pheromone-directed movement of a benthic diatom, *Seminavis robusta*. *Microb Ecol*, 72, 287-294.
2. **Bondoc, K.G.V.**, Heuschele J., Gillard, J. Vyverman, W., Pohnert G. (2016) Selective silicate-directed motility in diatoms. *Nat Commun* 7:10540.
1. **Bondoc, K. G. V.**, Lee, H., Cruz, L. J., Lebrilla, C. B., Juinio-Meñez, M. A. (2013). Chemical fingerprinting and phylogenetic mapping of saponin congeners from three tropical holothurian sea cucumbers. *Comp Biochem Physiol B Biochem Mol Bio*, 166 (3), 182-193. (with corrigendum: *Comp Biochem Physiol B Biochem Mol Bio*, 175, 39-40)

Under review/in prep

1. Dumalan, R.J., **Bondoc, K.G.V.**, Juinio-Meñez, M. A. Potentials of juvenile sandfish (*Holothuria scabra*) grow-out in a fish farm impacted area. *Aquaculture*, under review.
2. Albelda, R.L., Purganan, D.J.E., Gomez, N.C.F., Narvarte, B.C.dV., Calalang, P.C., Genovia, T.G.T., Gernato, E.G.M., **Bondoc, K.G.V.**, San Diego-McGlone, M.L., Onda, D.F.L. *Journal of Environmental Science and Management*, in prep.

PATENT

Azanza, R., Cruz, L.J., Dumalan, R.J.P., Austero, M., **Bondoc, K.G.V.**, Rivera, P.P.L. (2016) Biotxin Adsorption Toxin Tracking (BATT): A device for the detection of Paralytic Shellfish Toxin (PST). Invention Disclosure Award from University of the Philippines.

HONORS, AWARDS, FELLOWSHIPS/SCHOLARSHIPS, AND GRANTS

Honors

Phi Sigma Biological Honors Society, M.Sc. Marine Sciences 2012

Awards

Best Oral Presentation, Microscale Ocean Biophysics Conference, InterUniversity Institute for Marine Sciences, Eilat, Israel 2016

Best Oral Presentation, 15th International Max Planck Research School (IMPRS) Symposium, Max Planck Institute for Chemical Ecology, Dornburg, Germany

Best Oral Presentation, 23rd International Diatom Symposium (IDS), Nanjing, China 2014

Fellowships and Scholarships

Institute of Earth, Ocean, and Atmospheric Sciences (IEOAS) Rutgers Postdoctoral Fellowship, Rutgers University 2018

Ph.D. Finishing Scholarship: Richard-Winter-Stiftung, 2000 EUR for 5 months 2017

Ph.D. Fellowship: International Max Planck Research School (IMPRS) - Exploration of Ecological Interactions with Molecular and Chemical Techniques, 53,140 EUR for 3 years 2013

MSc Scholarship: Department of Science and Technology-Science Education Institute (DOST-SEI), Philippines, 400,242.50 PhP for 2.5 years 2007

B.Sc. Scholarship: Pamantasan ng Lungsod ng Maynila Alumni Association Scholarship, 18,000 PhP for 3 years 2005

Grants

Career Orientation Grant: Jena School of Microbial Communication, 2000 EUR, returned and not used 2016
Travel Grant: Prize Grant from 15th International Max Planck Research School (IMPRS) Symposium, 1000 EUR
Travel Grant: A New Age of Discovery for Microeukaryotes Pre-symposium summit for postdoctoral fellows and advanced graduate student, Gordon and Betty Moore Foundation, 750 USD
Travel Grant: Association for the Sciences of Limnology and Oceanography (ASLO) Student Travel Award, 500 USD 2015

TEACHING EXPERIENCE

Practical course (UV-Vis Spectrometry) of B.Sc. Chemistry students under the module Analytical Chemistry II, Winter Semesters 2013-14 & 2014-15, Friedrich-Schiller Universität Jena, Germany

RESEARCH STAY ABROAD

Royal Netherlands Institute for Sea Research (NIOZ)- Yerseke, Netherlands 01 -09 Aug 2013
Collaboration with Dr. Eva Maria Zetsche
Test the possible utilization of Digital Holographic Imaging (DHM) to image the localization and release of BrCN in *Nitzschia cf pellucida*.

PRESENTATIONS (FIRST AUTHOR ONLY)

Talks: International

Invited Talk: *Searching for food and mate in benthic diatoms*, Stazione Zoologica Anton Dohrn, Naples, Italy, Dec 2016. 2016
Comparative motility patterns of a biofilm-forming diatom across its life cycle, Microscale Ocean Biophysics Conference, InterUniversity Institute for Marine Sciences, Eilat, Israel, Nov 2016.
*Hungry for silicic acid: chemokinetic movement of the diatom *Seminavis robusta* towards Si sources*, 2015 Aquatic Sciences Meeting, Granada, Spain, Feb 2015. 2015
*Hungry for resources: the nutrient-directed motility of *Seminavis robusta**, 23rd International Diatom Symposium (IDS), Nanjing, China, Sept 2014. 2014

Talks: Local

*Better together: A simultaneous tactic and kinetic response of the diatom *Seminavis robusta* to nutrient and pheromone gradients*, Jahrestagung 2016 der Vereinigung für Allgemeine und Angewandte Mikrobiologie (VAAM), Jena, Germany, Mar 2016. 2016
Nutrients and sex drive the motility of benthic diatoms and influence the structure of biofilms, 15th International Max Planck Research School (IMPRS) Symposium, Max Planck Institute for Chemical Ecology, Dornburg, Germany, Feb 2016.
Mineral recognition by unicellular algae: Silica-directed motility of diatoms, 50. Doktorandenworkshop, Naturstoffe: Chemie, Biologie, Ökologie, Würzburg, Germany, Oct 2015. 2015
*Hungry for silicic acid: the Si-directed motility of *Seminavis robusta**, Jena School for Microbial Communication (JSMC) Symposium, Jena, Germany, Sep 2014. 2014
Developing SPATT (Solid phase adsorption toxin tracking) as monitoring tool for paralytic shellfish poisoning (PSP), 3rd National Harmful Algal Blooms (HABs) Conference, Tagbilaran City, Bohol, Philippines, Nov 2011. 2011
*Effects of environmental conditioning on the production of saponins (triterpene glycosides) in juvenile *Holothuria scabra* (Jaeger, 1984)*, 11th Philippine Association of Marine Science (PAMS) National Symposium in Marine Science, Tagaytay City, Philippines, Oct 2011.
*Quantification of saponins in different age classes of *Holothuria scabra**, 10th National Symposium in Marine Science, Davao City, Philippines, Oct 2009. 2009

Poster: International

<i>Structuring benthic diatom biofilm communities: movement of <i>Seminavis robusta</i> towards food and pheromone sources</i> , EMBO/EMBL Symposium: A New Age of Discovery for Aquatic Microeukaryotes, EMBL Heidelberg, Germany, Jan 2016.	2016
<i>The search for a mate: Chemokinetic movement of <i>Seminavis robusta</i> towards the pheromone, L-dipropylamine</i> , 5 th International Student Conference on Microbial Communication (MiCom), Jena, Germany, Apr 2015.	2015
<i>Patchy biofilm formation: resource-directed motility of the microalga <i>Seminavis robusta</i></i> , 2 nd International Workshop on Image-based Systems Biology, Jena, Germany, Sept 2014.	2014
Poster: Local	
<i>Hungry for silicic acid: the Si-directed motility of <i>Seminavis robusta</i></i> , 13 th International Max Planck Research School (IMPRS) Symposium, Max Planck Institute for Chemical Ecology, Dornburg, Germany, Feb 2014.	2014
<i>Complex interactions during biofilm formation by benthic diatoms</i> , 12 th International Max Planck Research School (IMPRS) Symposium, Max Planck Institute for Chemical Ecology, Jena, Germany, Feb 2013.	2013
Science Slams: Local	
<i>The secret of the sea: A battle between food and sex</i> , Jena Graduate Academy (JGA) Summer Party, Jena, Germany, Jun 2016.	2016
<i>Food, sex, and minions</i> , Jena School Microbial Communications (JSMC) Retreat, Bad Sulza, Hotel "An der Therme", Germany, Nov 2015.	2015

SKILLS AND ACTIVITIES

Research Skills

Experimental design, Phytoplankton cultivation, Microscopy, Image analysis (ImageJ/Fiji), Cell tracking (TrackMate in Fiji), Chemoattraction assays, R Programming, Statistical Modeling (linear, general additive, and mixed models), Liquid chromatography, Chemical extraction of bioactive compounds and toxins, Feeding assays in invertebrates, Phylogenetics, Field sampling (Aquatic)

Organizational and Leadership Skills

Science Editor Head of Aghamazing! (Science Communication Initiative of Filipino Scientists)	2018
Organizing team for the 5 th International Student Conference on Microbial Communications (MiCom 2015); responsible for website management and design, IT tasks, registration, and abstract submissions	2015
Staff and leader of an international Christian group (Internationaler Kreis) in Jena, Germany under Studentenmission in Deutschland e.V.	2013 – 2016

Scientific Memberships

Association for the Sciences of Limnology and Oceanography, Phi Sigma Biological Society

Other interests

Photography, visual design, international culture, event coordination