

PATRICK R. PATA

313-2022 Main Mall, Vancouver,
BC V6T 1Z4, Canada

p.pata@oceans.ubc.ca | +1 236 979 7282
<https://github.com/PatrickPata>

PROFILE

I am a biological oceanographer focused on zooplankton ecology. I am interested in understanding the oceanographic and ecological drivers of zooplankton distributions and how the emergent spatiotemporal trends translate into ecosystem functions and services. Most of my work involve the synthesis of observations of water properties, plankton communities, and species-specific traits. My research is aimed towards supporting the development of mechanistic ecosystem models and promoting the consideration of the role of zooplankton in informing ocean conservation and management.

EDUCATION

2019 – present

Doctor of Philosophy in Oceanography

Department of Earth, Ocean, and Atmospheric Sciences, University of British Columbia

Thesis: *Structure and functioning of zooplankton communities of the Canadian Northeast Pacific Ocean.*

Advisor: Dr. Brian P.V. Hunt

2014 – 2017

Master of Science in Marine Science

Marine Science Institute, University of the Philippines

Thesis: *Philippine coral reef connectivity and network analysis.*

Advisor: Dr. Aletta T. Yñiguez

2008 – 2012

Bachelor of Science in Psychology, magna cum laude

College of Social Science and Philosophy, University of the Philippines

RESEARCH EXPERIENCE

2019, May – present

PhD Candidate - Pelagic Ecosystems Laboratory

Institute for the Oceans and Fisheries, University of British Columbia, Canada

2016, Jan – 2018, Dec

Masters Scholar - Capturing Coral Reef and Related Ecosystem Services Project

Marine Science Institute, University of the Philippines Diliman, Philippines

2012, Jul – 2015, Dec

Research Assistant - Biological Oceanography and Modelling of Ecosystems Laboratory

Marine Science Institute, University of the Philippines Diliman, Philippines

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TECHNICAL SKILLS

- Computer programming in R, Matlab, Java, and Python
- Numerical ecology analysis, particularly multivariate statistics
- Analysis of satellite and physical oceanography data
- Oceanographic data collection and laboratory processing
- Individual-based modelling
- Species distribution modelling
- Ordinary differential equation modelling
- GIS and spatial decision-support tools with QGIS and Marxan
- Ocean circulation modelling with HYCOM and Delft3d
- Administering workshops, stakeholder interviews, and focused group discussions
- CMAS 1-Star Open Water SCUBA diver
- Developing psychometric scales and social science questionnaires
- Scientific illustration and graphic design

AWARDS AND GRANTS

- | | |
|------|---|
| 2023 | Zooplankton Production Symposium Travel Grant, 1,400 CAD
Department of Earth, Ocean and Atmospheric Sciences Graduate Scholarship,
University of British Columbia, 1,500 CAD
Association for the Sciences of Limnology and Oceanography Student Travel Grant,
800 USD |
| 2022 | Canadian Institute of Ecology and Evolution – Living Data Project grant for organizing
a working group, 13,800 CAD
W.H. Mathews Scholarship, University of British Columbia, 5,000 CAD |
| 2021 | NSERC Alexander Graham Bell Canada Graduate Scholarship-Doctoral, 105,000 CAD
Paul J. Harrison Memorial Award in Oceanography, University of British Columbia,
4,300 CAD
International Biogeography Society Student Travel Award, 500 USD |
| 2020 | Four-year Doctoral Fellowship, University of British Columbia, 18,200 CAD |
| 2016 | MSc Scholarship, Marine Environment and Resources Foundation, Inc., ~7,000 USD |

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EXPERIENCE AT SEA

<i>Aug 11, 2022 & May 18, 2023</i>	Howe Sound, British Columbia small-vessel field sampling Institute for the Oceans and Fisheries, University of British Columbia
<i>Jul 4–14, 2022</i>	Quadra Island and Bute Inlet, British Columbia small-vessel field sampling Institute for the Oceans and Fisheries, University of British Columbia
<i>Mar 2–10, 2014</i>	Bohol Sea – Zamboanga Upwelling Cruise aboard MV <i>DA-BFAR</i> Marine Science Institute, University of the Philippines Diliman
<i>May 7–16, 2013</i>	Luzon Strait Cruise aboard R/V <i>Roger Revelle</i> Scripps Institute of Oceanography, University of California, San Diego
<i>Feb 18–26, 2013</i>	Bohol Sea – Zamboanga Upwelling Cruise aboard MV <i>DA-BFAR</i> Marine Science Institute, University of the Philippines Diliman
<i>2012 – 2016</i>	Various small-vessel field work at different areas of the Philippines Marine Science Institute, University of the Philippines Diliman

TEACHING AND MENTORSHIP

- Working group leader for the Living Data Project working group with graduate students and postdocs on *Linking species distributions and traits to understand ecosystem functioning* (Feb 2023 – present). In this working group, I instructed on zooplankton ecology and statistical analysis and led the conceptualization and analysis of the working group project.
- Teaching assistant for the University of British Columbia courses: EOSC 470 (Biological Oceanography, 1 term, 2023), EOSC 473/573 (Methods in Oceanography, 2 terms, 2020 & 2021), EOSC 315 (The Ocean Ecosystem, 1 term, 2020), and EOSC 114 (The Catastrophic Earth, 1 term, 2019). In the EOSC 473/573 course, I instructed undergraduate and graduate students on biological and chemical field sampling techniques and conducting experiments.
- Mentor for the UBC Research Experience program. I supervised undergraduate projects and conference presentations of A. Reinhardt (2021) on *The relationship between pelagic larval duration and latitudinal range shifts of coastal invertebrates*, and Y. Wu (2022) on *Using Benford's Law to assess biodiversity datasets*. I also mentor a UBC masters student, J. Fast (2021 – present), who is working on zooplankton nutritional quality.
- Facilitator for the Department of Science and Technology – Science Education Institute, Philippines, Marine Science Summer Camps (2013 – 2015). In these two-week field courses, I developed practical teaching modules, designed illustrations, and instructed on oceanographic sampling techniques.

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PEER-REVIEWED PUBLICATIONS

- Pata, P.R.**, Galbraith, M., Young, K., Margolin, A., Perry, R.I., and Hunt, B.P.V. (2024). Data-driven determination of zooplankton bioregions and robustness analysis. *MethodsX*. (Under review).
- Pata, P.R.**, and Hunt, B.P.V. (2023). Harmonizing marine zooplankton trait data towards a mechanistic understanding of ecosystem functioning. *Limnology and Oceanography*. (Early view)
- Pata, P.R.**, Galbraith, M., Young, K., Margolin, A., Perry, R.I., and Hunt, B.P.V. (2022). Persistent zooplankton bioregions reflect long-term consistency of community composition and oceanographic drivers in the NE Pacific. *Progress in Oceanography*, 206, 102849.
- Currie, J., Blain, S.A., Emry, S., Hebert, K., Xie, G., Moore, N., Wang, X., Brown, A., Burant, J.B., Grevstad, L., Marconi, V., McRae, L., Mezzini, S., **Pata, P.R.**, and Freeman, R. (2022). Assessing the representation of species included within the Canadian Living Planet Index. *FACETS*.
- Pata, P.R.**, Yñiguez A.T. (2021). Spatial planning insights for Philippine coral reef conservation using larval connectivity networks. *Frontiers in Marine Science*, 1406.
- Pata, P.R.**, Yñiguez A.T., Deauna, J.D., De Guzman, A.B., Jimenez, C.R., Borja-del Rosario, R., and Villanoy, C. (2021). Insights into the environmental conditions contributing to variability in the larval recruitment of the tropical sardine *Sardinella lemuru*. *Ecological Modelling*, 451, 109570.
- Cabasan, J.P., Arceo, H.O., **Pata, P.R.**, Labrador, K.L., Casauay, R.B., Miller, N., Rodriguez, M.V.B. (2021). Combining information on otolith morphometrics and larval connectivity models to infer stock structure of *Plectropomus leopardus* in the Philippines. *Marine Ecology Progress Series*, 679, 115-131.
- Pata, P.R.**, Yñiguez A.T. (2019). Larval connectivity patterns of the North Indo-West Pacific coral reefs. *PLoS ONE* 14(7): e0219913.

TECHNOLOGY TRANSFER

- Horigue, V., Balingit A.C., **Pata P.R.**, Villanoy, C.L., Quibilan, M.C., Licuanan, W.Y., and Aliño, P.M. (2018) Fish SPACE: a spatial tool for marine reserve design and fisheries management [Computer Software]. Capturing Coral Reefs and Related Ecosystems Project (CCRES). Quezon City, Philippines.

JOURNAL PEER REVIEW

- 2023 Bulletin of Marine Science (Rosenstiel School of Marine, Atmospheric, and Earth Science)
2023 Coral Reefs (Springer)
2022 Marine Pollution Bulletin (Elsevier)

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ACADEMIC TRAININGS AND WORKING GROUPS

Instructional Skills Workshop. Center for Teaching, Learning, and Technology. University of British Columbia. 2024, Feb.

Living Data Project working group: Linking species distributions and traits to understand ecosystem functioning. 2023, Feb.

Certificate in Synthetic and Collaborative Science – Canadian Institute of Ecology and Evolution (CIEE). 2022, Apr.

Living Data Project working group: Finding indicator species by assessing the utility of sampled abundance indices. 2021, Aug–Sep.

Foundations of Pedagogy Course. Center for Teaching, Learning, and Technology. University of British Columbia. 2019, Oct–Nov.

WestGrid Research Computing Summer School. University of British Columbia. 2019, Jun.

South-East Asia Network for Education and Training (SEA-NET) Project. Summer intern under Prof. Sen Jan, Institute of Oceanography, National Taiwan University, Taipei, Taiwan. 2016, Aug–Sep.

Training in ASEAN Oceanography, Marine and Coastal Resources Network Conference, Phuket, Thailand. 2014, Oct.

CONFERENCE PRESENTATIONS

Pata, P.R. and Hunt, B.P.V. (2023, Sep). *Development and applications of a global harmonized zooplankton trait database*. FishBase Symposium, online.

Pata, P.R. and Hunt, B.P.V. (2023, Jun). *Developing a global harmonized zooplankton trait database*. Association for the Sciences of Limnology and Oceanography 2023 Aquatic Sciences Meeting, Mallorca, Spain.

Pata, P.R., Burant J., Mezzini, S., Currie, J., McRae, L., Freeman, R., and Marconi, V. (2022, Aug). *A sampled approach to abundance biodiversity indicators*. Ecological Society of America – Canadian Society for Ecology and Evolution Joint Meeting, Montreal, Canada.

Pata, P.R., Galbraith, M., Young, K., Margolin, A., Perry, R.I., and Hunt, B.P.V. (2022, Jun). *The persistent cross-shelf regionalization of zooplankton communities in coastal oceans*. Biennial conference of the International Biogeography Society, Vancouver, Canada.

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- Pata, P.R.**, Galbraith, M., Young, K., Margolin, A., Perry, R.I., and Hunt, B.P.V. (2022, Mar). *Persistence of biogeographic regions across 20-years of zooplankton community observations in the NE Pacific*. Ocean Sciences Meeting, online.
- Pata, P.R.**, Margolin, A., Galbraith, M., Young, K., Perry, I., and Hunt, B.P.V. (2020, Mar). *Zooplankton bioregionalization of the British Columbia coastal ocean*. State of the Pacific Ocean Meeting, Nanaimo, Canada.
- Pata, P.R.**, Galbraith, M., Young, K., Perry, I., and Hunt, B.P.V. (2019, Oct). *Sensitivity analysis on zooplankton bioregionalization of British Columbia*. North Pacific Marine Science Organization (PICES) Annual Meeting, Victoria, Canada. (Best Poster Award)
- Pata, P.R.** and Yñiguez A.T. (2017, Jul) *Insights on national coral reef conservation from a regional connectivity network analysis*. 14th National Symposium of the Philippine Association of Marine Science, Batangas, Philippines. (Best Poster Award)
- Pata, P.R.** and Yñiguez A.T. (2015, Oct) *A settlement competency approach to national scale reef connectivity*. Philippine 13th National Symposium of the Association of Marine Science. General Santos City, Philippines.
- Pata, P.R.** and Yñiguez A.T. (2014, Oct) *Ecosystem modelling of Sardinella lemuru in the Southern Philippines*. 46th Annual National Convention of the Federation of Institutions for Marine and Freshwater Sciences. Dapitan City, Philippines.
- Pata, P.R.**, Deauna, J.D., Borja-del Rosario, R., Yñiguez A.T., and Villanoy, C. (2014, Jul) *Emergent spatiotemporal distribution patterns of an individual-based biophysical model of early life stage sardines (Sardinella lemuru) in the southern Philippines*. 11th Annual Meeting of the Asia Oceania Geosciences Society, Sapporo, Japan.
- Pata, P.R.**, Yñiguez A.T., Villanoy, C., Deauna, J.D., and Borja-del Rosario, R. (2014, Apr) *An individual-based model of Sardinella lemuru as a potential management tool in the southern Philippines*. 9th International Scientific Symposium of the IOC Sub-Commission for the Western Pacific (WESTPAC), Nha Trang, Vietnam.

REFERENCES

Dr. Brian P.V. Hunt

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University of British Columbia
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Dr. Aletta T. Yñiguez

Professor
University of the Philippines
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