

# HO Yuen-Wa, Ph.D.

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## ACADEMIC RECORDS

**Post-Doctoral Fellow.** Dept. of Food Science and Nutrition, The Polytechnic University of Hong Kong. Dec 2021 – present

Microplastic analysis using Raman, FT-IR and Optical Photothermal-IR spectroscopies

**Ph.D.** in Cetacean Ecology. The University of Hong Kong. 2015 – 2021

Thesis title: Foraging Ecology of Indo-Pacific Humpback Dolphins in the Pearl River Estuary: A Multifaceted Approach. Supervisors: Dr Leszek Karczmarski (primary) & Dr David M Baker (co)

**B.Sc.** in Ecology & Biodiversity. The University of Hong Kong. 2010 – 2013

## PROFESSIONAL AFFILIATIONS & PREVIOUS POSITIONS

Researcher, Cetacea Research Institute, Hong Kong.	2018 – present
Scientific Advisory Committee, Ocean Park Conservation Foundation Hong Kong.	2024 – present
Research Assistant, Dept. of Appl. Biol. & Chem. Tech. HKPU.	2019 – 2021
Research Assistant, Cetacean Ecology Lab, School of Biological Sciences. HKU.	2013 – 2015

## PUBLICATIONS

13 co-authored publications in environmental and ecological journals, including *Nature Communications* (1), *Journal of Hazardous Materials* (2), *Science of the Total Environment* (1), *Environmental Pollution* (1), *Ecological Indicators* (1), *Biological Conservation* (1).

Google Scholar Citations: **279**    *H-index*: **6**    *I-10 index*: **6**    (as of Oct 2024)

Referred Journal Publications    \* Equal contributing authors

*Manuscripts to be Submitted*

19. **Ho, Y.-W.**, Pang, C.-C., Yiu, M.-W., Mak, C.-W., Lai, C., Wang, Y., Hu, M., Liu, X., Xu, W., Kwan, K.Y., Gonçalves, D., Chan, B.K.K., Cheung, S.-G., & Fang, J.K.H. (*in prep.*) Spatial variability of microplastics uptake in oysters along the Chinese coastal waters: a human health risks assessment. *Marine Pollution Bulletin*
18. **Ho, Y.-W.**, Cheng, M.C.Y., Thoe, W., & Fang, J.K.H. (*in prep.*) From fragments to fibres: A comprehensive study on microplastic pollution in Hong Kong's freshwater ecosystems. *Water Research*
17. **Ho, Y.-W.**, Karczmarski, L., Lin, W., Leung, M.M.L., & Fang, J.K.H. (*in prep.*) Assessing the scale of underestimation: microplastic ingestion in marine megafauna with a case study of Indo-Pacific humpback dolphins in Hong Kong. *Journal of Hazardous Materials*

*Manuscript in Revision / under Review*

16. Liu, X., Yao, S., Xiong, A., Zhang, L., Zhang, X., Li, C., Ruan, Y., Yan, M., **Ho, Y.-W.**, Fang, J.K.H., Wang, B., Leusch, F., Schlenk, D., Liu, W., Leung, K.M.Y., & Jin, L. (*in submission*) Contribution of natural toxins and anthropogenic contaminants to species-specific seawater cytotoxicity. *Nature Waters*
15. Bao, Y., **Ho, Y.-W.**, Shen, Z., Fang, J.K.H., Leung, K.M.Y., & Lee, P.K.H. (*in submission*) Ecological roles and microbial exchange capabilities of microbiomes associated with microplastics are distinct from those associated with natural particles in urban rivers. *Environmental Science & Technology*

14. **Ho, Y.-W.**, Karczmarski, L., Lin, W., Lo, M.C.Y., Wu, Y., & Baker, D.M. (major revision). Modeling life history parameters in marine mammals: Bayesian hierarchical analysis of ontogenetic dietary shifts in Indo-Pacific humpback dolphins. *Ecological and Evolutionary Physiology*

*Peer-reviewed journal articles*

13. Jia, M., Farid, M.U., **Ho, Y.-W.**, Ma, X., Wong, P.W., Nah, T., He, Y., Boey, M.W., Gang, L., Fang, J.K.H., Fan, J., & An, A.K. (2024) Advanced nanobubble flotation for enhanced removal of sub-10 µm microplastics from wastewater. *Nature Communications* 15, 9079
12. Lin, Y., Wang, Y., **Ho, Y.-W.**, Fang, J.K.H., & Li, Y. (2024) Characterization and ecological risks of microplastics in urban road runoff. *Science of the Total Environment* 176590
11. Zhu, Y., Li, Y., Huang, J., Zhang, Y., **Ho, Y.-W.**, Fang, J.K.H., & Lam, E.Y. (2024) Advanced optical imaging technologies for microplastics identification: Progress and Challenges. *Advanced Photonics Research* 2400038
10. Liang, T.<sup>#</sup>, **Ho, Y.-W.**<sup>#</sup>, Wang, Q., Wang, P., Sun, S., Fang, J.K.H., & Liu, X. (2024) Distribution and risk assessment of microplastics in water, sediment and brine shrimps in a remote salt lake on the Tibetan Plateau, China. *Journal of Hazardous Materials* 476, 134959
9. Chan, S.C.Y.<sup>#</sup>, **Ho, Y.-W.**<sup>#</sup>, & Karczmarski, L.<sup>#</sup> (2024) Reproductive dynamics of an inshore delphinid reflect demographic consequences of large-scale coastal constructions. *Biological Conservation* 297, 110690
8. Li, Y., Zhu, Y., Huang, J., **Ho, Y.-W.**, Fang, J.K.H., & Lam, E.Y. (2024) High-throughput microplastic assessment based on polarization holographic imaging. *Scientific Reports* 14, 2355
7. Lin, W., Karczmarski, L., Chan, S.C.Y., Zheng, R., **Ho, Y.-W.**, & Mo, Y. (2024) Population parameters and heterogeneity in survival rates of Indo-Pacific humpback dolphins in a heavily urbanized coastal region of southeast China: Implications for conservation. *Frontiers in Marine Science* 11:1252661
6. **Ho, Y.-W.**, Lin, T.-H., Akamatsu, T., & Karczmarski, L. (2024). Fine-scale spatial variability of marine soundscape corresponds with habitat utilization of Indo-Pacific humpback dolphins in Hong Kong waters. *Ecological Indicators* 158, 111228  
\* Interview by Sing Tao Daily – “研究員為白海豚 保護寧靜海”. 22 May 2023.
5. Chan, S.C.Y., Karczmarski, L., Lin, W., Zheng, R., **Ho, Y.-W.**, Guo, L., Mo, Y., Lee, A.T.L., Or, C.K.M., & Wu, Y. (2022). An unknown component of a well-known population: socio-demographic parameters of Indo-Pacific humpback dolphins (*Sousa chinensis*) at the western reaches of the Pearl River Delta region. *Mammalian Biology* 1-23 (IF: 1.6)
4. **Ho, Y.-W.**, Lim, J.Y., Yeoh, Y.K., Chiou, J.-C., Zhu, Y., Lai, K.P., Li, L., Chan, P.K.S., & Fang, J.K.H. (2022) Preliminary findings of the high quantity of microplastics in faeces of Hong Kong residents. *Toxics* 10, 414 (IF: 4.6)
3. Leung, M.M.L., **Ho, Y.-W.**, Maboloc, E.A., Lee, C.-H., Wang, Y., Hu, M., Cheung, S.-G., & Fang, J.K.H. (2021). Determination of microplastics in the edible green-lipped mussel *Perna viridis* using an automated mapping technique of Raman microspectroscopy. *Journal of Hazardous Materials* 126541 (IF: 14.2)

2. Leung, M.M.L., **Ho, Y.-W.**, Lee, C.-H., Wang, Y., Hu, M., Kwok, K.W.H., Chua, S.-L., & Fang, J.K.H. (2021) Improved Raman spectroscopy-based approach to assess microplastics in seafood. *Environmental Pollution* 117648 (IF: 9.98)
1. Karczmarski, L., Huang, S.-L., Or, C.K.M., Gui, D., Chan, S.C.Y., Lin, W., Porter, L., Wong, W.H., Zheng, R., **Ho, Y.-W.**, Chui, S.Y.S., Tiongson, A.J.C., Mo, Y., Chang, W.L., Kwok, J.H.W., Tang, R.W.K., Lee, A.T.L., Yiu, S.-W., Keith, M., Gailey G., & Wu, Y. (2016). Humpback dolphins in Hong Kong and the Pearl River Delta: Status, threats and conservation challenges. *Advances in Marine Biology* 73, 27–64 (IF: 3.1)

#### Technical Reports

3. **Ho, Y.-W.**, & Fang, J.K.H. (2024) 3<sup>rd</sup> National Marine Pollution Baseline Survey (Microplastics). Submitted to Environmental Protection Department, Hong Kong SAR.
2. **Ho, Y.-W.**, & Fang, J.K.H. (2024) Comprehensive study of microplastics in Hong Kong's river and streams. Submitted to Environmental Protection Department, Hong Kong SAR.
1. Karczmarski, L., Huang, S.-L., Wong, W.-H., Porter, L., **Ho, Y.-W.**, Or, C.K.M., Lin, W., Chan, S.C.Y., Zheng, R., Chui, S.Y.S., Gailey, G., Wu, Y. (2014) The Indo-Pacific humpback dolphin (*Sousa chinensis*): Hong Kong Red List Assessment.

#### RESEARCH GRANTS

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6. **Co-PI.** The unknown facets of conservation ecology of Hong Kong cetaceans: Night-time habitat use, diurnal acoustic environment, and impacts of anthropogenic noise on Chinese white dolphins and Indo-Pacific finless porpoises. (2021). Hong Kong Offshore LNG Terminal Project Marine Conservation Enhancement Fund. (MCEF20026; HKD: 1,988,860)
5. Project Member. “可持續發展海產養殖計劃” – 香港有機養殖業協會. (2019-2020) Hong Kong International Airport Fishery Enhancement Fund. (FEF2019004, HKD 916,400)
4. Project Member. Population Assessment of Indo-Pacific finless porpoises in the Guangdong–Hong Kong–Macao Greater Bay Area. (2019). Zhilan Foundation, Shenzhen, China. (2019040231B; RMB 99,946)
3. Project Member. Assessment of primary anthropogenic stressors to Chinese White Dolphins in heavily urbanized estuary. (2019). The Ocean Park Conservation Foundation Hong Kong. (4030001570; HKD 201,500)
2. **Deputy PI.** Night-time distribution and abundance of Chinese white dolphins (*Sousa chinensis*) in Hong Kong waters: Conservation implications. (2019). The Ocean Park Conservation Foundation Hong Kong. (MM04.1920; HKD 387,800)
1. **Co-PI.** Diurnal Pattern of Habitat Use vs. Anthropogenic Noise in Core Areas of Chinese White Dolphins (*Sousa chinensis*) and Finless Porpoises (*Neophocaena phocaenoides*) in Hong Kong waters. (2017). The Ocean Park Conservation Foundation Hong Kong. (MM02.1718; HKD 683,770)

#### Contract Research

2. Provision of services for “Baseline survey on microplastics in Hong Kong's River water” and “3<sup>rd</sup> National Marine Pollution Baseline Survey (Microplastics)” (第三次海洋污染基線調查 - 微塑料調查作業). Client: Environmental Protection Department, HKSAR. (Ref: 21-04636; HK\$1,359,970)

1. Microplastics in the coastal waters of Hong Kong. (2019–2021). Client: World Wide Fund for Nature Hong Kong, HKSAR (Ref: 19-037; HK\$140,800).

## AWARDS

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- 2018 Best Presentation Award. 2<sup>nd</sup> Oceanoise Asia Conference, Hakodate, Japan
- 2017 Conference Travel Grant Award. Society for Marine Mammalogy. Halifax, Canada.
- 2015 Conference Travel Grant Award. Society for Marine Mammalogy. San Francisco, U.S.A.
- 2015-19 Swire Institute of Marine Science – Marine Biology Scholarship. The Swire Institute of Marine Science, The University of Hong Kong
- 2015-19 Postgraduate Scholarship. The University of Hong Kong

## EDITORIAL SERVICES

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### *Journal Review*

Integrative Zoology; Estuarine, Coastal and Shelf Science; Environmental Geochemistry and Health; Marine Pollution Bulletin; Scientific Reports; Environmental Monitoring and Assessment; Journal of Mammalogy.

### *Grant Review (2)*

Conservation Funding 2024; Biodiversity Funding 2024 – *Ocean Park Conservation Foundation Hong Kong*

## COMMUNITY SERVICES AND KNOWLEDGE EXCHANGE

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### *Invited Talks*

11. “Microplastics Across Mediums: A Comprehensive Survey of Ecosystems and Organisms” – Workshop on Optical and Computational Technologies to Combat Microplastics and Nanoplastics Pollution, HKU. 11 June 2024
10. “Anthropogenic Impact on Foraging Ecology of Indo-Pacific Humpback Dolphins: A Multifaceted Microplastics and Acoustic Approach” – Academia Sinica, Taiwan. 5 July 2023
9. “Diurnal Pattern of Habitat Use vs. Anthropogenic Noise in Core Areas of Chinese White Dolphins (*Sousa chinensis*) and Finless Porpoises (*Neophocaena phocaenoides*) in Hong Kong Waters” – The Ocean Park Conservation Foundation Hong Kong. 19 April 2023
8. “Extraction of microplastics from marine biological samples and their polymer identification using Raman spectroscopy” – East Asia Regional Training Workshop. Monitoring and assessment of microplastics in marine environments. Co-organized by PEMSEA & SKLMP. 14 December 2022
7. “Microplastics in edible oysters and their significance in the Greater Bay Area” – SKLMP SCRF. 7 April 2022
6. “Microplastics in edible oysters and their significance in the Greater Bay Area” – SKLMP SCRF. 7 March 2021
5. Invited Collaborator Workshop Trainer. Aquatic Soundscape Workshop. University of Philippines, Cebu, Philippines. 23-25 September 2019.
4. Invited Collaborator Workshop Trainer. Aquatic Soundscape Workshop. University of Philippines, Cebu, Philippines. 13-17 May 2018

3. “Ontogenetic dietary shift in the Indo-Pacific humpback dolphins”. Sun Yat-sen University, Zhuhai, China. 16 April 2018
2. Invited Talk. Education Talk for Fishermen. Tai Po Environmental Association. 12 June 2017
1. Invited Talk. Education Talk for Fishermen at Tai O fishing village. WWF–HK. 28 March 2015

#### *Press Interviews*

- 2024 Interview by Environmental Protection Department HKSAR and filmed by Radio Television HK (RTHK) – “「Bye Bye 微膠珠」約章”. 24 Jan 2024.
- 2023 Interview by Sing Tao Daily – “研究員為白海豚 保護寧靜海”. 22 May 2023.

#### *International and Regional Conservation Meetings*

- 2024 Workshop on Optical and Computational Technologies to Combat Microplastics and Nanoplastics Pollution. The University of Hong Kong
- 2022 East Asia Regional Training Workshop – Monitoring and assessment of microplastics in marine environments. Co-organized by PEMSEA & SKLMP
- 2019 Pearl River Estuary Chinese White Dolphin Conservation Vision Workshop. WWF–Hong Kong, Hong Kong
- 2018 WWF Marine Hotspot Map Meeting. WWF–Hong Kong, Hong Kong
- 2017 Chinese White Dolphin (*Sousa chinensis*) Population and Habitat Viability Assessment Workshop. Conservation Breeding Specialist Group (CBSG) of IUCN Species Survival Commission (SSC) and Ocean Park Conservation Foundation Hong Kong (OPCFHK), Hong Kong
- 2017 Public Consultation Meeting for the Proposed IWMF Marine Park. Environmental Protection Department, HKSAR, Hong Kong
- 2016 Chinese White Dolphin (*Sousa chinensis*) Population Viability Analysis Workshop. Conservation Breeding Specialist Group (CBSG) of IUCN Species Survival Commission (SSC) and Ocean Park Conservation Foundation Hong Kong (OPCFHK), Hong Kong
- 2016 WWF Marine Hotspot Map Workshop. WWF–Hong Kong, Hong Kong
- 2015 Meeting of Preliminary Boundaries and Management Plans of the Proposed Southwest Lantau and Soko Islands Marine Parks. Agriculture, Fishery and Conservation Department (AFCD), HKSAR, Hong Kong
- 2015 Guangdong–Hong Kong–Macau Chinese White Dolphin Conservation Workshop 2014-2015. Administration of Ocean and Fisheries of Guangdong Province and Guangdong–Pearl River Estuary Chinese White Dolphin National Nature Reserve, Zhuhai, China
- 2015 Workshop 3 on Chinese White Dolphins. Civil Engineering and Development Department (CEDD), HKSAR, Hong Kong

## **TEACHINGS**

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#### *Course Instructed / Tutor-in-charge:*

- HKU – BIOL1309 – Evolutionary Diversity (Chief Course Demonstrator)
- HKU – BIOL2318 – The Biology of Marine Mammals Field Course (Tutor: 2016, 2017)
- HKU – BIOL3103 – Animal Behaviour (Tutor)
- HKU – BIOL3320 – The Biology of Marine Mammals (Guest lecture: 2017, Tutor)
- HKU – BIOL4921 – Animal Behaviour & Behavioural Ecology Field Course (Chief Course Demonstrator)
- HKU – BIOL4451 – Cetacean Behaviour, Ecology and Conservation: Field Research Exp. (Tutor: 2018)

- PolyU – ABCT3391 – Ecology and Ecosystems (Guest lecture: 2021 – 2023)
- HKUSPACE – CCST4200 – Critical Analysis & Reasoning in Discipline-based Studies. (Lecturer: 2022, 2023)

*Supervised / collaborated students projects:*

- PhD Proj. (CityU - SEE), Miss Bao Yingyu – Microbiome community in river MPs.
- PhD Proj. (PolyU - CEE), Miss Liu Xintong – Algal toxin in fibroblast cell of marine mammals.
- PhD Proj. (PolyU - CEE), Miss Lin Yinghong – MPs in first flushes of stormwater from urban road runoff.
- PhD Proj. (Ocean University of China), Miss Liang Ting – MPs in remote salt-lake on the Tibetan Plateau.
- MPhil Proj. (PolyU - FSN), Mr Yuen Chu-Ho – MPs distribution & transfer pattern in coral communities.
- MPhil Proj. (PolyU - ABCT), Mr Leung Ming Lok – Method improvement for determination of MPs in seafood. Currently working as Marine Officer at AFCD.
- FYP Theis Proj. (PolyU), Mr Aqua Yiu – Microplastics in oysters along the coast of China. Final Grade: A
- FYP Theis Proj. (PolyU), Ms Tam Hiu Tung–UV-degradation of microplastics from eating utensils.
- FYP Theis Proj. (PolyU), Ms Ko Shuk Yan–Microplastics ingestion in finless porpoises in Hong Kong waters.

## CONFERENCES

10. Bao, Y., Ho, Y.-W., Shen, Z., Fang, J.K.H., Leung, K.M.Y., & Lee, P.K.H. (2024) Deciphering the ecological roles of the plastisphere in urban rivers in Hong Kong. In: 19th International Symposium on Microbial Ecology, Cape Town, South Africa
9. Leung, M.M.L., Ho, Y.-W., et al. (2021) Determination of microplastics in the edible green-lipped mussel *Perna viridis* using an automated mapping technique of Raman microspectroscopy. In: BECoME 2022, Hong Kong, China
8. Karczmarski, L., Chan, S.C.Y., Ho, Y.-W., Lin, W., Or, C.K.M., Guo, L., & Wu, Y. (2019) Oral presentation. Socio-spatial dynamics of a coastal delphinid in a heavily anthropogenically impacted estuarine seascape. In: 2nd World Marine Mammal Conference, Barcelona, Spain
7. Ho, Y.-W., Baker, D.M., Wu, Y., Lin, W., & Karczmarski, L. (2019) Advantages of applying Bayesian framework in the analyses of ontogenetic dietary shifts in a coastal delphinid. Oral presentation. In: 2nd World Marine Mammal Conference, Barcelona, Spain
6. Ho, Y.-W., Lin, T.-H., Akamatsu, T., & Karczmarski, L. (2018) Unsupervised classification of marine soundscape with non-negative matrix factorization. Poster presentation. In: Big Data Challenges for Predictive Modeling of Complex Systems. Hong Kong, China
5. Ho, Y.-W., Lin, T.-H., Akamatsu, T., & Karczmarski, L. (2018) Spatial variation of marine soundscape within the habitat of Indo-Pacific humpback dolphins (*Sousa chinensis*) in Hong Kong. Oral presentation  
\* **Best Presentation Award**. In: 2nd Oceanoise Asia Conference. Hakodate, Japan
4. Lin, W., Karczmarski, L., Zheng, R., Guo, L., Mo, Y., Chan, S.C.Y., Ho, Y.-W., Or, C.K.M., Chui, S.Y.S., & Wu Y. (2017) The extinction risk has been seriously underestimated for the Indo-Pacific humpback dolphins in the Pearl River Estuary. Poster presentation. In: 22nd Biennial Conference on the Biology of Marine Mammals. Halifax, Nova Scotia, Canada
3. Ho, Y.-W., Baker, D.M., Wu, Y., Lin, W., & Karczmarski, L. (2017) Ontogenetic dietary shifts in the Indo-Pacific humpback dolphin (*Sousa chinensis*). Oral presentation. In: 22nd Biennial Conference on the Biology of Marine Mammals. Halifax, Nova Scotia, Canada
2. Chui, S.Y.S., Chan, S.C.Y., Wong, W.-H., Tionson, A.J.C., Or, C.K.M., Ho, Y.-W., Huang, S.-L., Lee, A.T.L., Kwok, H.W., Stokes, G., Gailey, G., & Karczmarski, L. (2015) A case of failed rescue and animal suffering in Hong Kong: An example never to be followed. In: 21st Biennial Conference on the Biology of Marine Mammals, San Francisco, USA

1. **Ho, Y.-W.**, Chan, S.C.Y., & Karczmarski, L. (2015) Skin disorders and traumatic mutilations of Indo-Pacific humpback dolphins (*Sousa chinensis*) in Hong Kong. Poster presentation. In: 21st Biennial Conference on the Biology of Marine Mammals. San Francisco, U.S.A.

## WORKSHOPS

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11. Invited Talk. Seminar on "Microplastics Across Mediums: A Comprehensive Survey of Ecosystems and Organisms" – Workshop on Optical and Computational Technologies to Combat Microplastics and Nanoplastics Pollution, HKU. 11 June 2024.
10. Guest Speaker. "Extraction of microplastics from marine biological samples and their polymer identification using Raman spectroscopy" – East Asia Regional Training Workshop. Monitoring and assessment of microplastics in marine environments. Co-organized by PEMSEA & SKLMP. 14 December 2022.
9. 2<sup>nd</sup> World Marine Mammal Conference. Barcelona, Spain. Distance sampling surveys of marine mammal density and abundance: from introductory ideas to latest developments. 7 December 2019.
8. Organizing Committee Member. 9th South–East Asian Training Workshop in Marine Mammal Research Techniques: Quantitative Socio-Behavioural Analyses using SOCPROG. Instructor: Dr. Shannon Gowans. January 2018.
7. 22nd Biennial Conference on Marine Mammals - Distance Sampling: Conventional and Hierarchical Methods for Abundance in R. Halifax, Nova Scotia, Canada. 29 October 2017.
6. Invited Workshop Speaker. Extending Asian Soundscape Monitoring Network and Moving Towards Open Science Platform. The University of Philippines, Cebu, the Philippines. 13-17 May 2017.
5. The International Society for Ecological Modelling 2017 - Machine Learning and Data Mining. Jeju, South Korea. 16-17 September 2017
4. Organizing Committee Member. 1st Regional Training Workshop in Computational Behavioural Ecology: Quantitative Ecology and Population Modelling using NOVA Computational Platform. Instructor: Prof Wayne Getz. May 2017.
3. 21st Biennial Conference on Marine Mammals - Analysis of Passive Acoustic Data & Acoustic-Based Density Estimation Workshops. Software: PAMGuard & Distance. Instructor: Bio-Wave. The Society for Marine Mammalogy. San Francisco, USA. 12 -13 December 2015.
2. Multi-Species Data Management with Software DISCOVERY. Instructor: Dr. Glenn Gailey. Cascadia Research Collective, USA. October 2014.
1. Analyses of Animal Social Structure with Software SOCPROG. Instructor: Ms. Wei-Lun Chang & Dr. Leszek Karczmarski. The University of Hong Kong. January 2014.

## TECHNICAL STRENGTHS

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Software	R, Python, MATLAB, QGIS, SOCPROG (social network analysis)
Instruments	(Spectroscopy) Raman spectroscopy, FT-IR, Optical Photothermal-IR; (Electron Microscope) SEM, TEM; (Micro-Sampling) Micromill; (Acoustics) SoundTrap, SongMeter, Acoustic-Tag