

# Fabien Vivier

[fvivier@hawaii.edu](mailto:fvivier@hawaii.edu)

## CURRENT POSITION

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**Graduate assistant in Marine Biology** at the University of Hawaii at Mānoa, **Aug. 2018 – Present**  
Hawaii Institute of Marine Biology, HI, USA; PhD expected August 2023)

- Supervisor: **Dr Lars Bejder**

**Research interests:** I am interested in studying how natural processes, including prey and climate variability, influence the growth and health of large whale and dolphin populations which are often considered not only charismatic species but also sentinels of ocean health.

I plan on investigating the behavioral ecology of these long-lived species and collecting relevant data through the use of innovative technology, such as Unmanned Aerial Vehicles (UAVs) and non-invasive telemetry tags.

## RESEARCH EXPERIENCE

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**Project Field Leader, Gray whale body condition using UAVs** **Jan. – Apr. 2018**

*Marine Mammal Research Program, Hawaii Institute of Marine Biology, University of Hawaii ; Murdoch University Cetacean Research Unit, Murdoch University, AUS & Programa de Investigación de Mamíferos Marinos, Universidad Autónoma de Baja California Sur, La Paz, B.C.S., México*

- Operated UAVs to collect aerial of gray whales (*Eschrichtius robustus*) to assess their body condition and health during the breeding-season. Total flight time 52.5h – 214 flights
- Managed and processed the data collected
- Educated undergraduate students and conducted public outreach on research objectives and gray whale ecology (about 20 presentations between 1h and 2.5h each)
- Supervisors: **Dr Lars Bejder & Dr Fredrik Christiansen**

**Project Field Leader, Caribbean sperm whales body condition using UAVs** **May 2017 / 2018**

*Murdoch University Cetacean Research Unit (MUCRU), Murdoch University, AUS & Dominica Sperm Whale Project (DSWP), Aarhus University, DEN*

- Operated UAVs to collect aerial body measurements of sperm whales (*Physeter macrocephalus*) to assess their body condition and health. Total flight time 04.7h – 40 flights
- Managed database and processed images using R
- Supervisors: **Dr Fredrik Christiansen & Dr Shane Gero**

**Research Assistant, Southern right whales body condition using UAVs** **Jun. – Sep. 2016**

*Murdoch University Cetacean Research Unit (MUCRU), Murdoch University, AUS*

- Operated UAVs to collect aerial of Southern right whales (*Eubalaena australis*) to assess their body condition and health during the breeding season. Total flight time 57.9h – 261 flights
- Project Field Leader for 1 month
- Conducted public outreach on right whales and other marine wildlife ecological facts
- Processed images using R, managed database

- Supervisor: **Dr Fredrik Christiansen**

## **Research Assistant, whale shark ecology & anthropogenic effects**

**Nov. – Jun. 2016**

*Large Marine Vertebrates Institute, PHI*

- Collected abundance, anthropogenic interaction and behavioral data of whale sharks (*Rhincodon typus*) at an aggregation site in Southern Leyte, Philippines
- Conducted public outreach on research objectives, whale shark and marine mammal ecology
- Conducted community outreach and educational presentations to local schools (e.g. marine vertebrate and plastic pollution lectures, beach clean ups, snorkeling club, marine-based activities and movies)
- Managed, processed and analyzed photo-ID and 4 years of anthropogenic/behavioral data (R)
- Supervisor: **Gonzalo Araujo (Science Director)**

## **Research Assistant, cetacean ecology**

**May – Aug. 2015**

*Cetacean, Ecology and Evolution Lab (CEBEL), Flinders University, AUS*

- Collected baseline information on the population size, habitat use of humpback/bottlenose dolphins (*Sousa sahulensis*; *Tursiops aduncus*) around Ningaloo coast, Western Australia
- Rotated between scanning for dolphins, recording field observations, photographing dorsal fins and driving the 6m vessel during daily coastal surveys
- Managed, processed and matched fin images with catalogues
- Supervisor: **MSc Daniella Hanf**

## **Research Assistant, dolphin ecology**

**Aug. – Sep. 2014 / Aug. – Oct. 2015**

*Cetacean, Ecology and Evolution Lab (CEBEL), Flinders University, AUS*

- Collected baseline information on the population size, spatial ecology, and socio-genetic structure of burrunan dolphins (*Tursiops australis*) in Coffin Bay, South Australia
- Rotated between scanning for dolphins, recording field observations, and driving the 7m vessel during daily coastal surveys and biopsy events
- Processed data using Discovery
- Supervisors: **Dr Cecilia Passadore & Dr Fernando Diaz-Aguirre**

## **Research Assistant, dolphin ecology & anthropogenic effects (MScRes one year fast-track)**

**Feb. – Aug. 2014**

*Coastal Marine Research Group (CMRG), Massey University, NZ*

- Collected information of anthropogenic effects on the acoustic and behavior of bottlenose dolphins (*Tursiops truncatus*) in the Bay of Islands, New Zealand
- Scanned for dolphins, collected data (i.e. dolphin behavior, tourism interaction), photographed dorsal fins and drove the 6m research vessel.
- Conducted public outreach on research objectives and marine predators ecology
- Managed, processed and analyzed data (e.g. Markov Chains, mapping) using R and GIS software
- Report: *“Preliminary study of short-term behavioral responses of bottlenose dolphins (Tursiops*

*truncatus*) to vessel interaction in the Bay of Islands, New Zealand”

- Supervisor: **Catherine Peters (PhD candidate)**

## **Research Intern, Antarctic fur seal foraging ecology (MScRes Level 2) Feb. – Aug. 2013**

*Centre d'Etudes Biologiques de Chizé - Centre National de Recherche Scientifique (CEBC-CNRS), FRA*

- Research on foraging strategies of Antarctic fur seals (*Arctocephalus gazella*) at the Kerguelen Archipelago, southern Indian Ocean
- Processed and analyzed diving and spatial data; determined diving patterns; quantified foraging success, defined foraging strategies and mapped foraging areas using R
- Report: “Areas of ecological significance and foraging strategies of Antarctic fur seals (*Arctocephalus gazella*) during their reproduction period at the Kerguelen Archipelago”
- Supervisors: **Dr Christophe Guinet, Dr Tiphaine Jeanniard-du-Dot & Dr Pascal Monestiez**

## **Research Intern, Southern elephant seal foraging ecology (MSc Level 1) May – Jun. 2012**

*Centre d'Etudes Biologiques de Chizé - Centre National de Recherche Scientifique (CEBC-CNRS), FRA*

- Research on diving behavioral variations of Southern elephant seals (*Mirounga leonina*)
- Managed, processed, analyzed diving/spatial data, determined diving patterns and quantified foraging success (estimated prey capture attempts via accelerometers) using R and Matlab
- Supervisor: **Dr Christophe Guinet**

## **EDUCATION**

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**Master of Science in Ecological Modelling** (University Paul Sabatier, Toulouse, FRA) **Sep. 2013 – Jun. 2014**

**Master of Science in Marine Ecology** (1<sup>st</sup> / 16) (University of Corsica, FRA) **Sep. 2012 – Jun. 2013**

**Bachelor in Marine Biology and Ecology** (University of La Rochelle, FRA) **Sep. 2007 – Jun. 2011**

## **SKILLS**

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- **UAV experience:** total flight time of 115.1h – 515 flights
- **R programming:**
  - *Database management:* diving data (TDR), spatial data (GPS) and environmental data (i.e. SST, Bathymetry, Salinity). Managing and creating databases
  - *Spatial analysis:* Fuzzy-Kappa, mapping, Time Spent per Area, Mapping
  - *Analysis:* estimating number of prey capture attempts (via accelerometers), predicting prey capture attempts (prediction modeling based on behavioral data), statistical analysis, Markov chains, modelling (GLM, GAMs, GLMM)
  - *Script development and transcription to Matlab language*
- **Software proficiencies:** Matlab, Scilab, ArcGIS, LaTeX, Discovery and Hotspotter (animal matching software), ACDSee, Adobe Photoshop, Microsoft office
- **Spoken skills:** French (native) | English (professional working proficiency) | Spanish (basics)
- **Other skills:** Small boat driving/handling - 1400+ h, sailing experience (1.5 mo)

## CERTIFICATES & LICENCES

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- Unmanned Aerial Vehicle (UAV) Controller (Australia) **2016**
- Aeronautical Radio Operator (Civil Aviation Safety Regulation 1998, Australia) **2016**
- Advanced Open Water Diver (PADI) **2016**
- Marine Mammal Medic (Project Jonah New Zealand) **2014**
- Driving license (B type, France) **2008**

## REFEREES

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- **Lars Bejder, PhD:** Director of the Marine Mammal Research Program | University of Hawaii at Mānoa | Hawaii Institute of Marine Biology | +1 808 892 9490 | [lbejder@hawaii.edu](mailto:lbejder@hawaii.edu)
- **Fredrik Christiansen, PhD:** Postdoctoral Research Fellow | Cetacean Research Unit | Murdoch University, Australia | +6 417 502 098 | [f.christiansen@murdoch.edu.au](mailto:f.christiansen@murdoch.edu.au)
- **Gonzalo Araujo:** Executive Director at Large Marine Vertebrates Research Institute Philippines | +63 905 404 383 | [g.araujo@lamave.org](mailto:g.araujo@lamave.org)

## PUBLICATIONS

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- Christiansen, F., **Vivier, F.**, Charlton, C., Ward, R., Amerson, A., Burnell, S. & Bejder, L. 2018. Maternal body size and condition determine calf growth rates in southern right whales. *Marine Ecology Progress Series* 592:267-282. <https://doi.org/10.3354/meps12522>
- Araujo, G., **Vivier, F.**, Labaja, J. J., Hartley, D. & Ponzo, A. Assessing the impacts of tourism on the world's largest fish *Rhincodon typus* at Panaon Island, Southern Leyte, Philippines. *Aquatic Conserv: Mar Freshw Ecosyst.* 2017; 00:1–9. <https://doi.org/10.1002/aqc.2762>
- **Vivier, F.**, Guinet, C., & Jeanniard-du-Dot, T. Defining Areas of Ecological Significance of a top marine predator, the Antarctic fur seal (*Arctocephalus gazella*): compromises between effort and accuracy. *Manuscript submitted for publication.*

## PRESENTATIONS

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- **Vivier, F.**, Bejder L., Rodríguez-González, F.M., Martínez-Aguilar, S., Urbán-Ramírez, J., L. Swartz, S. & Christiansen, F. Estimating lactation cost in gray whales using Unmanned Aerial Vehicles. *Poster presented at the XXXVI International Meeting of The Mexican Society for Marine Mammalogy (SOMEMMA); 2018 ay 27-31, Villahermosa, Mexico.*
- Christiansen, F., **Vivier, F.**, Charlton, C., Ward, R., Amerson, A., Burnell, S. & Bejder, L. Maternal size and body condition determine calf growth rates in Southern right whales: Repeated individual sampling using unmanned aerial vehicles. *Presented at the 22nd Biennial Conference on the Biology of Marine Mammals; 2017 Oct. 22-27, Halifax, Nova Scotia, Canada*
- Araujo, G., **Vivier, F.**, Labaja, J., Snow, S., Hartley, D., Ponzo, A. Understanding giants: using in-water observations to inform management of whale sharks *Rhincodon typus*. *Presented at the The Society for Conservation Biology Asia; 2016 Jun. 29 – Jul. 02, Singapore.*