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29/12/1986  
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## Research summary

I am working on how environmental changes affect the spatial, diving and foraging behaviour of upper-trophic marine predators in changing polar environments. My particular interest is the use of bio-logging and how data analysis can improve the understanding of ecological processes in the field of marine sciences.

## Education

- 20/05/2014**                    **PhD degree**, Ecology - Highest distinction  
Paul Sabatier University, Toulouse, France.
- 15/06/2010**                    **Master of Science degree (MSc)**, Biodiversity, Ecology and Evolution - with honors  
Paul Sabatier University, Toulouse, France.
- 18/03/2008**                    **Three-year university degree (Bachelor)**, Organisms biology, populations and ecosystems  
Paul Sabatier University, Toulouse, France.
- 08/07/2004**                    **Scientific high school diploma** – Biology  
Pierre d'Aragon high school, Muret, France.

## Research and professional experiences

- 01/08/2021 –ongoing**                    **Research Scientist**  
La Rochelle University - Chizé Centre for Biological Studies (CEBC), Villiers en Bois, France.  
Supervision: Tiphaine Jeanniard-du-Dot and Jérôme Spitz.  
Evolution of the foraging strategies of an ice-associated seal facing the drastic changes occurring in the Arctic in the last 30 years: the case study of the two hooded seal stocks, *Cystophora cristata*.
- 01/11/2020 – 31/12/2020**                    **Research Scientist**  
Norwegian Polar Institute, Tromsø, Norway (NPI).  
Supervision: Kit M. Kovacs and Christian Lydersen.  
Identification of Arctic marine mammals' habitats.
- 01/10/2019 – 31/10/2020**                    **Research Scientist**  
Norwegian Polar Institute, Tromsø, Norway (NPI)/ CNRS-Chizé Centre for Biological Studies (CEBC), Villiers en Bois, France.  
Supervision: Kit M. Kovacs, Christian Lydersen and Christophe Guinet.  
Spatial Ecology of ice-associated and migratory cetacean species.
- 27/07/2015 - 26/07/2019**                    **Postdoctoral Research Fellow**  
Norwegian Polar Institute, Tromsø, Norway (NPI).  
Supervision: Kit M. Kovacs and Christian Lydersen.  
Spatial ecology of ice-associated whales and seals – ICE WHALES programme.
- 01/11/2014 - 31/12/2014**                    **Research assistant**  
**01/07/2014 - 31/07/2014**  
Sea Mammals Research Unit (SMRU), St Andrews, Scotland.  
Supervision: Phil Lovell and Mike Fedak.

Set up and experimental validation of new codes to implement into conventional deployed tags on seals to detect prey captures attempts using head-mounted accelerometers.

**01/03/2011-28/02/2014**

**PhD thesis**

CNRS-Chizé Centre for Biological Studies (CEBC), Villiers en Bois, France.  
Supervision: Christophe Guinet, Frédéric Bailleul (CEBC) and Etienne Danchin (Paul Sabatier University, Toulouse, France).  
Spatio-temporal variation in the foraging activity of elephant seals in relation to the physical and biological environmental parameters.

**01/10/2010-28/02/2011**

**Research assistant**

CNRS-Chizé Centre for Biological Studies (CEBC), Villiers en Bois, France.  
Supervision: Christophe Guinet.  
Using photo-identification to analyse the survival and abundance of two sperm whales' populations (*Physeter macrocephalus*) interacting with toothfish fisheries in the Crozet and Kerguelen archipelago.

**23/02/2010 - 16/06/2010**

**Research internship** for the research master degree

CNRS-Chizé Centre for Biological Studies (CEBC), Villiers en Bois, France.  
Supervision: Christophe Guinet (CEBC), Philippe Gaspard and François Royer from the "Collecte Localisation Satellites" (CLS-ARGOS), Toulouse, France.  
Southern elephant seals, *Mirounga leonina*, scale-dependent foraging behaviour at great depth: the bioluminescence influence.

**13/02/2009 - 05/05/2009**

**Research internship** for the first-year master degree

Paul Sabatier University, Toulouse, France.  
Supervision: Géraldine Loot and Simon Blanchet.  
Validation of the molecular tagging in the aquatic environment and use in the context of an epidemiological survey of a dace population (*Leuciscus leuciscus*).

**10/06/2008 - 26/07/2008**

**Research internship**

Mingan Island Cetacean Study Research Station (MICS), Québec.  
Supervision: Richard Sears, Christian Ramp and Frederic Paquet.  
Taking field notes, writing logbooks, matching individuals observed at sea with photo-identification catalogs and public education. Species: blue whales, *Balaenoptera musculus*; Humpback whales, *Megaptera novaeangliae* and Finback whales, *Balaenoptera physalus*.

**01/02/2008 - 03/06/2008**

**Research internships**

Paul Sabatier University, Toulouse, France.  
Supervision: Etienne Danchin and Simon Blanchet.  
Influence of food on the sex ratio of guppies, *Poecilia reticulata*; Cultural transmission of drosophila, *Drosophila melanogaster*; Host-parasite interaction in a dace population, *Leuciscus leuciscus*.

## Teaching activities

**01/02/2021 – 16/06/2021**

**Supervising** of a master II student on the impact of the oceanographic environment on the foraging behaviour of the hooded seals, *Cystophora cristata*.

**28/04/2017 and 05/07/2019**

**Teaching** – Svalbard archipelago, Norway.

Supervision: Kit M. Kovacs  
Spatial Ecology and Linear mixed effect models in the framework of the Biotelemetry & bio-logging course.

**10/10/2011-14/10/2011**

**Supervising** of masters students in the framework of the PERS projects

CNRS-Chizé Centre for Biological Studies (CEBC), Villiers en Bois, France

## Organization of scientific conference

Spring 2012

Contribution to the organization of the 8<sup>th</sup> « Ecology and Behaviour » international conference (SERL). CNRS-Chizé Centre for Biological Studies (CEBC), Villiers en Bois, France. **Active member of the organizing committee.**

## Certificates

15/10 2020	Workplace first-aider – France.
10/03/2017	Experimental animal science for researchers' qualification - Norway
26/02/2014	TOEIC diploma – score 755.
16/06/2009	Boat license – Coastal navigation - France.
08/04/2007	PADI Advanced open water diving license
27/11/2006	Driving license
08/06/2003	Regional volley ball coach license.

## Skills

### Fieldwork:

- on wild marine mammals at Svalbard archipelago (07/2019): Blue and fin whales tag deployments.
- on wild marine mammals at Svalbard archipelago (07/2016 – 08/2016): White whales and ringed seals tag deployments - behavioural observations, capture, morphometric measurements, blood sampling, tagging, satellite tracking.
- on wild marine mammals at Svalbard archipelago (07/2015 – 09/2015 and 07/2018 – 08/2018): Ice whales and polar bear surveys – total count and distance sampling methodologies.
- on wild marine mammals at Kerguelen archipelago (12/2011 – 03/2012): Southern elephant seals tag deployments - behavioural observations, capture, morphometric measurements, blood sampling, tagging, satellite tracking, numerous loggers (CTD-SRDL, TDR, GPS, accelerometer...).

**Lab and analytical work:** analysis of satellite tracking data, remotely-sensed environmental data extraction and analysis, geostatistics, animal location, spatial analysis (Kernel density estimation, First-Passage Time analysis, Hidden Markov models), dive analysis of marine mammals.  
DNA extraction, amplification by PCR on samples of fish fins.

**Software:** programming with R, Matlab, QGIS, Microsoft Office, Mark, MapInfo, Genemapper, Genetix.

## Publications

Cites retrieved from Google Scholar September 2020.

- **Vacquié-Garcia J**, Lydersen C, Lydersen E, Christensen GN, Guinet C, Kovacs KM (2021) Seasonal habitat use of a lagoon by ringed seals *Pusa hispida* in Svalbard, Norway. *Marine Ecology Progress Series*, In Press. (cites =0)
- Lydersen C, **Vacquié-Garcia J**, Heide-Jørgensen MP, Øien N, Guinet C, Kovacs KM (2020) Autumn movements of fin whales (*Balaenoptera physalus*) from Svalbard, Norway, revealed by satellite tracking. *Scientific Reports*, **10**:16966. <https://doi.org/10.1038/s41598-020-73996-z>. (cites =0)
- Kovacs KM, Lydersen C, **Vacquié-Garcia J**, Shpak O, Glazov D, Heide-Jørgensen MP (2020) The endangered Sptisbergen bowhead whales' secrets revealed after hundreds of years in hiding. *Biology Letters*, **16**:20200148. <https://doi.org/10.1098/rsbl.2020.0148>. (cites=1)
- **Vacquié-Garcia J**, Lydersen C, Marques TA, Andersen M, Kovacs KM (2020) First abundance estimate for white whales *Delphinapterus leucas* in Svalbard, Norway. *Endangered Species Research*, **41**:253-263. <https://doi.org/10.3354/esr01016>. (cites=1).
- **Vacquié-Garcia J**, Lydersen C, Kovacs KM (2019) Diving behaviour of adult male white whales (*Delphinapterus leucas*) in Svalbard, Norway. *Polar Research*, **38**:3605. <https://doi.org/10.33265/polar.v38.3605>. (cites=0).
- Hamilton CD, **Vacquié-Garcia J**, Kovacs KM, Ims RA, Kohler J, Lydersen C (2019) Contrasting changes in space use induced by climate change in two Arctic marine mammal species. *Biology Letters*, **15**:20180834. <https://dx.doi.org/10.1098/rsbl.2018.0834>. (cites=7).

- **Vacquié-Garcia J**, Lydersen C, Ims RA, Kovacs KM (2018) Habitats and movement patterns of white whales *Dephinapterus leucas* in Svalbard, Norway in a changing climate. *Movement Ecology*, **6**:21. <https://doi.org/10.1186/s40462-018-0139-z>. (cites=8).
- Lydersen C, **Vacquié-Garcia J**, Lydersen E, Christensen GN, Kovacs KM (2017) Novel terrestrial haul-out behaviour by ringed seals (*Pusa hispida*) in Svalbard, in association with harbour seals (*Phoca vitulina*). *Polar Research*, **36**:1374124. <https://doi.org/10.1080/17518369.2017.1374124>. (cites=6)
- **Vacquié-Garcia J**, Lydersen C, Biuw M, Haug T, Fedak MA, Kovacs KM (2017) Hooded seal *Cystophora cristata* foraging areas in the Northeast Atlantic Ocean- Investigated using three complementary methods. *PLoS ONE*, **12**(12): e0187889. <https://doi.org/10.1371/journal.pone.0187889>. (cites=9).
- **Vacquié-Garcia J**, Mallefet J, Bailleul F, Picard B, Guinet C. (2017) Marine Bioluminescence: Measurement by a Classical Light Sensor and Related Foraging Behavior of a Deep Diving Predator. *Photochemistry and Photobiology*, **93**(5):1312-1319. <https://doi.org/10.1111/php.12776>. (cites=5).
- **Vacquié-Garcia J**, Lydersen C, Marques TA, Aars J, Ahonen H, Skern-Mauritzen M, Øien N, Kovacs KM (2017) Late summer distribution and abundance of ice-associated whales in the Norwegian High Arctic. *Endangered Species Research*, **32**:59-70. <https://doi.org/10.3354/esr00791>. (cites=23).
- Richard G, Cox SL, Picard B, **Vacquié-Garcia J**, Guinet C (2016) Southern Elephant Seals Replenish Their Lipid Reserves at Different Rates According to Foraging Habitat. *PLoS ONE*, **11**(11): e0166747. <https://doi.org/10.1371/journal.pone.0166747>. (cites=11).
- **Vacquié-Garcia J**, Guinet C, Dragon AC, Viviant M, El Ksabi N, Bailleul F (2015) Predicting prey capture rates of southern elephant seals from track and dive parameters *Marine Ecology Progress Series*, **541**: 265–277. <https://doi.org/10.3354/meps11511>. (cites=10).
- Labrousse S, **Vacquié-Garcia J**, Heerah K, Guinet C, Sallee J-B, Authier M, Picard B, Roquet F, Bailleul F, Hindell M, Charrassin J-B (2015) Winter use of sea ice and ocean water mass habitat by southern elephant seals: The length and breadth of the mystery. *Progress in Oceanography*, **137**:52-68. <https://doi.org/10.1016/j.pocean.2015.05.023>. (cites=31).
- Jouma'a J, Le Bras Y, Richard G, **Vacquié-Garcia J**, Picard B, El Ksabi N, Guinet C (2015) Adjustment of diving behaviour with prey encounters and body condition in a deep diving predator: the Southern Elephant Seal. *Functional Ecology*, **30**(4):636-648. <https://doi.org/10.1111/1365-2435.12514>. (cites=23).
- Genin A, Jouma'a J, Picard B, ElKsabi N, **Vacquié-Garcia J**, Guinet C (2015) Characterization of postdive recovery using sound recordings and its relationship to dive duration, exertion and foraging effort of southern elephant seals (*Mirounga leonina*). *Marine Mammal Science*, **31**(4): 1452–1470. <https://doi.org/10.1111/mms.12235>. (cites=13).
- Bailleul F, **Vacquié-Garcia J**, and Guinet C (2015) Dissolved Oxygen Sensor in Animal-Borne Instruments: An Innovation for Monitoring the Health of Oceans and Investigating the Functioning of Marine Ecosystems. *PlosONE*, **10**(7): e0132681. <https://doi.org/10.1371/journal.pone.0132681>. (cites=15).
- **Vacquié-Garcia J**, Guinet C, Laurent C, Bailleul F (2015) Delineation of the southern elephant seal's main foraging environments defined by temperature and light conditions. *Deep sea research II*, **113**: 145:153. <https://doi.org/10.1016/j.dsr2.2014.10.029>. (cites=15).
- Tixier P, **Vacquié-Garcia J**, Gasco N, Duhamel G, Guinet C (2014) Mitigating killer whale depredation on demersal longline fisheries by changing fishing practices. *ICES Journal of Marine Science*, **72**(5):1610-1620 <https://doi.org/10.1093/icesjms/fsu137> (cites=34).
- Richard G, **Vacquié-Garcia J**, Jouma'a J, Picard B, Genin A, Arnould J.P.Y., Bailleul F, Guinet C. (2014) Variation in body condition during the post-moult foraging trip of southern elephant seals and its consequences on diving behaviour. *Journal of Experimental Biology*, **217** : 2609-2619. <https://doi.org/10.1242/jeb.088542>. (cites=31).
- Guinet C, **Vacquié-Garcia J**, Picard B, Bessigneul G, Lebras Y, Dragon AC, Viviant M, Arnould JPY, Bailleul F (2014) Southern elephant seal foraging success in relation to temperature and light conditions: insight on their prey distribution. *Marine Ecology Progress Series*, **499**:285-301. <https://doi.org/10.3354/meps10660>. (cites=79).
- Jaud T, Dragon AC, **Vacquié-Garcia J**, Guinet C (2012) Relationship between Chlorophyll a Concentration, Light Attenuation and Diving Depth of the Southern Elephant Seal *Mirounga leonina*. *PlosONE*, **7**(10): e47444. <https://doi.org/10.1371/journal.pone.0047444>. (cites=48).
- **Vacquié-Garcia J**, Royer F, Dragon AC, Viviant M, Bailleul F, Guinet C (2012) Foraging in the Darkness of the Southern Ocean: Influence of Bioluminescence on a Deep Diving Predator. *PlosONE*, **7**(8):e43565. <https://doi.org/10.1371/journal.pone.0043565>. (cites=39).
- Andreou D, **Vacquié-Garcia J**, Cucherousset J, Blanchet S, Gozlan RE, Loot G (2012) Individual genetic tagging for teleosts: an empirical validation and a guideline for ecologists. *Journal of Fish Biology*, **80**:181-194. <https://doi.org/10.1111/j.1095-8649.2011.03165.x>. (cites=15).

## Communications

- **Vacquié-Garcia J**, Lydersen C, Marques TA, Andersen M, Kovacs KM (2019) First abundance estimate of the white whale, *Delphinapterus leucas*, stock in Svalbard, Norway. 23th Biennial Conference on the Biology of Marine Mammals, 09/12/2019-13/12/2019, Barcelona, Spain. **Poster**.
- **Vacquié-Garcia J**, Lydersen C, Marques TA, Andersen M, Kovacs KM (2019) First abundance estimate of the white whale, *Delphinapterus leucas*, stock in Svalbard, Norway. 2nd Int. Workshop Beluga Whale Res. & Conserv. 12/03/2019-14/03/2019, **Mystic Aquarium, Mystic, CT, USA. Talk**.
- **Vacquié-Garcia J**, Lydersen C, Kovacs KM (2017) Movements and activity patterns of white whales *Delphinapterus leucas* in Svalbard, Norway. 22th Biennial Conference on the Biology of Marine Mammals, 23/10/2017-27/10/2017, Halifax, Canada. **Talk**.
- **Vacquié-Garcia J**, Joumaa J, Mallefet J, Bailleul F, Guinet C (2014) Foraging in the deep dark of the southern Ocean for luminous prey. 5<sup>th</sup> International Bio-Logging Science Symposium (BLS5), 22/10/2014-26/10/2014, Strasbourg, France. **Talk**.
- **Vacquié-Garcia J**, Guinet C, Laurent C, Bailleul F (2013) Assessment of fish prey distribution through characterization of feeding habitats of a top predator. 20<sup>th</sup> Biennial Conference on the Biology of Marine Mammals, 09/12/2013-13/12/2013, Dunedin, New Zeland. **Poster**.
- **Vacquié-Garcia J**, Guinet C, Laurent C, Bailleul F (2013) Assessment of fish prey distribution through characterization of feeding habitats of a top predator. 9<sup>th</sup> Ecology and Behaviour Meeting, 22/04/2013 -26/04/2013, Strasbourg, France. **Talk**.
- **Vacquié-Garcia J**, Guinet C, Laurent C, Bailleul F (2013) Assessment of fish prey distribution through characterization of feeding habitats of a top predator. 2<sup>nd</sup> « CLIOTOP » Symposium, 11/02/2013 – 15/02/2013, Nouméa, New Caledonia. **Poster**.