

# BAPTISTE ALGLAVE

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[https://balglave.github.io/b\\_alglave/](https://balglave.github.io/b_alglave/)

## RESEARCH INTEREST

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I am a quantitative ecologist and applied statistician with a specific interest in spatio-temporal modeling and applications in marine ecology. During my PhD, I developed statistical hierarchical models combining commercial catch declarations data and scientific survey data to infer fish spatio-temporal distribution and identify their essential habitats. Specifically, I developed methods to account for preferential sampling of commercial data and difference of spatial resolution between distinct data sources (change of support issues).

Since January 2023, I'm a post-doc fellow at the University of Washington (Seattle, USA) to develop spatio-temporal population dynamics models to project and address the effect of climate change on harvested population with the Snow Crab of the Bering Sea as case study.

## CURSUS

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### Postdoc

January 2023 - present

University of Washington, School of Aquatic and Fishery Sciences and NOAA

#### Project 1

Two-year contract

*Subject:* Modeling population dynamics processes in space to address climate change: Management Strategy Evaluation as framework.

*Key words:* State-space model, mechanistic modeling, demographic processes, spatial statistics, climate change.

*Supervisors:* André Punt, Cody Szuwalski, Maxime Olmos.

#### Project 2

One-year contract

*Subject:* Inferring spatio-temporal patterns from multivariate ecological data.

*Key words:* Spatio-temporal statistics, multivariate analysis, hierarchical model, dimension reduction.

*Supervisors:* Jim Thorson, David Kimmel, Tim Essington.

### PhD

2019 - 2022

Ifremer Nantes and Institut Agro (Rennes) - UMR DECOD

*Subject:* Inferring fish spatio-temporal distribution and identifying essential habitats: tackling the challenge of preferential sampling and change of support to integrate heterogeneous data sources. [link](#)

*Key words:* Spatial and spatio-temporal modeling, hierarchical model, data integration, preferential sampling, change of support, fisheries functional zones.

*Supervisors:* Youen Vermard, Marie-Pierre Etienne, Mathieu Woillez, Etienne Rivot.

*Student mobility:* DTU Aqua, Copenhagen, Denmark. Supervision of Kasper Kristensen. August - October 2021

### MSc in fisheries science and quantitative ecology

2018 - 2019

Institut Agro (Rennes)

#### Master thesis

Ifremer Nantes - EMH Research Unit

*Subject:* Management Strategy Evaluation under stock structure uncertainty.

Application to the common sole in the Eastern English Channel. [link](#)

*Supervisors:* Sigrid Lehuta, Youen Vermard.

### BSc in agriculture and food science

2016 - 2017

Institut Agro (Rennes)

*Student mobility:* Semester study at University College Cork, Ireland.

August - December 2017

## SCIENTIFIC PUBLICATIONS

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### Peer-reviewed

Alglave Baptiste, Rivot Etienne, Etienne Marie-Pierre, Woillez Mathieu, Thorson James T, Vermard Youen (2022). **Combining scientific survey and commercial catch data to map fish distribution.** ICES Journal of Marine Science. <https://doi.org/10.1093/icesjms/fsac032>

Alglave Baptiste, Vermard Youen, Rivot Etienne, Etienne Marie-Pierre, Woillez Mathieu (2023). **Identifying mature fish aggregation areas during spawning season by combining catch declarations and scientific survey data.** Canadian Journal of Fisheries and Aquatic Sciences. <http://dx.doi.org/10.1139/cjfas-2022-0110>

### Under review

Alglave Baptiste, Kristensen Kasper, Vermard Youen, Rivot Etienne, Woillez Mathieu, Etienne Marie-Pierre (*under review*). **Inferring fine scale wild species distribution from spatially aggregated data.** Submitted in the Journal of the Royal Statistical Society: Series C. [link](#)

Olmos Maxime, Cao Jie, Thorson James T., Punt André E., Monnahan Cole C., Alglave Baptiste, Cody Szuwalski (*under review*). **Resolving population processes in spatiotemporal population dynamics models: eastern Bering Sea snow crab as a case study.** Submitted in Ecological Modeling.

### In prep

Alglave et al., (*in prep*). **Assessing management strategies in space: Snow Crab of the Bering Sea as case study.**

Alglave et al., (*in prep*). **Investigating fish phenology in space and time from Empirical Orthogonal Functions.**

## TECHNICAL REPORTS

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Alglave Baptiste, Vermard Youen (2022). Ad-hoc contract for the preparation of STECF EWG 22-01 concerning closure areas to protect juveniles and spawners of all demersal stocks in western Mediterranean Sea.

## CONFERENCE PRESENTATIONS

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### International conferences

Alglave Baptiste, Punt André, Rivot Etienne, Szuwalski Cody, Etienne Marie-Pierre. **Integrating massive and heterogeneous spatiotemporal data to infer spatial processes. Marine ecology as a field of application.** French Society of Statistics. July 2023, Brussel, Belgium.

Alglave Baptiste, Vermard Youen, Etienne Marie-Pierre, Woillez Mathieu, Rivot Etienne (2022). **Can we use catch declarations data to map fish spatial distribution?** International Statistical Ecology Conference (ISEC). June 2022, Cape Town, South Africa. [link](#)

Alglave Baptiste, Vermard Youen, Etienne Marie-Pierre, Woillez Mathieu, Rivot Etienne (2021). **Can we trust commercial landings data to identify essential habitats of harvested fish? Application to several demersal species in the Bay of Biscay.** ISOBAY 17 - XVII International Symposium on Oceanography of the Bay of Biscay. June 2021, virtual event. [link](#)

### National conferences

Alglave Baptiste, Vermard Youen, Bez Nicolas, Etienne Marie-Pierre, Kristensen Kasper, Thorson James T., Woillez Mathieu, Rivot Etienne (2022). **Can we trust commercial catch declarations data to map fish spatio-temporal distribution and identify fish essential habitats?** 15th conference of the AFH 'Fisheries research and sustainable development'. June 2022, Brest, France. [link](#)

Florian Quemper, Baptiste Alglave, Marie-Pierre Etienne, Etienne Rivot, Mathieu Woillez, Youen Vermard, Mathieu Doray et Guillermo Boyra (2022). **Etude de la distribution spatio-temporelle de la sardine (*S. pilchardus*) dans le Golfe de Gascogne.** 15th conference of the AFH 'Fisheries research and sustainable development'. June 2022, Brest, France. [link](#)

Alglave Baptiste, Kristensen Kasper, Vermard Youen, Rivot Etienne, Woillez Mathieu, Etienne Marie-Pierre (2022). **Downscaling coarse observations to predict continuous species spatio-temporal distribution.** Meeting of the RESSTE network ‘Spatio-temporal statistics for remote sensing data’. May 2022, Paris, France. [link](#)

Alglave Baptiste, Kristensen Kasper, Vermard Youen, Rivot Etienne, Woillez Mathieu, Etienne Marie-Pierre (2022). **Going from coarse landings data to fine scale species distribution.** Annual meeting of the GdR ‘Ecology and statistics’. April 2022, Montpellier, France. [link](#)

Alglave Baptiste, Vermard Youen, Etienne Marie-Pierre, Woillez Mathieu, Rivot Etienne (2021). **Can we identify fish essential habitats with landings data? Application to the common sole of the Bay of Biscay.** Ecolstat 2021: annual meeting of the GdR ‘Ecology and statistics’. April 2021, virtual event. [link](#)

Alglave Baptiste, Etienne Marie-Pierre, Vermard Youen, Woillez Mathieu, Rivot Etienne (2020). **Spatio-temporal modeling of fishery functional zones by combining catch declarations data and scientific survey data.** Annual meeting of the GdR ‘Ecology and statistics’. March 2020, Rennes, France. [link](#)

Alglave Baptiste, Lehuta Sigrid, Leforestier Sophie, Vermard Youen (2019). **Management Strategy Evaluation of the Eastern English Channel common sole: management approach under uncertainty.** 14th conference of the AFH ‘Fisheries research and sustainable development’. June 2019, University of Caen Normandie, France. [link](#)

### Seminars

**Integrating heterogeneous and massive spatio-temporal data to infer spatial processes. Fisheries science as field of application.** Quantitative seminars, School of Fisheries and Aquatic Science, University of Washington, Seattle. March 2023.

**Integrating heterogeneous and massive spatio-temporal data to infer spatial processes. Fisheries science as field of application.** MIA, AgroParisTech, Paris Saclay. April, 2023.

**Inferring fish spatio-temporal distribution and identifying essential habitats: tackling the challenge of preferential sampling and change of support to integrate heterogeneous data sources.** [Ecodep seminars](#), Cergy University. January 2023.

**Can we identify essential habitats with landings data?** ESEminaire, Institut Agro, Rennes. March, 2021.

**How to combine commercial and scientific data to infer fish spatial distribution?** Doctoral students’ day. Ifremer, Visio. January 2021.

**How to combine commercial and scientific data to infer fish spatial distribution?** Causerie, EMH research unit, Ifremer Nantes. November, 2020.

## **SUPERVISORY EXPERIENCE**

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### **CDD Ifremer**

January 2023 - June 2024

*Subject:* Packaging and applying spatio-temporal models to identify fish essential habitats for all French facades.

*CDD employee:* Juliette Casemajor.

*Co-supervision with:* Mathieu Woillez.

### **Master**

May - July 2022

*Subject:* Contributions of the lognormal Poisson model for multivariate analysis of ecological communities. [link](#)

*Student:* Théo Fabien.

*Co-supervision with:* Marie-Pierre Etienne, Thomas Outrequin and Jean-Louis Marchand.

### **Master thesis**

February - August 2021

*Subject:* Combining commercial and scientific data to infer the space-time distribution of sardine in the Bay of Biscay. [link](#)

*Student:* Florian Quemper.

*Co-supervision with:* Etienne Rivot and Marie-Pierre Etienne.

## TEACHING

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<b>Introduction to spatio-temporal modeling for ecology (MSc)</b> Institut Agro (Rennes), 10 hours. <a href="#">slides</a> and <a href="#">codes</a>	2022
<b>Student project in data science (MSc)</b> Institut Agro (Rennes), 24 hours.	2020 - 2021
<b>Practical work in statistics for fisheries science (MSc)</b> Institut Agro (Rennes), 20 hours.	2020
<b>Practical work in basics of probability theory (BSc)</b> University of Nantes, 24 hours.	2019 - 2020

## PROJECTS AND WORKING GROUPS

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<b>ACLIM: The Alaska Climate Integrated Modeling Project</b> The Alaska Climate Integrated Modeling project (ACLIM) is an interdisciplinary collaboration to project and evaluate climate impacts on marine fisheries in the Bering Sea, Alaska. <a href="#">link</a> <i>Head of the project:</i> Kirstin Holsman (NOAA).	January 2023 - present
<b>MACCO project</b> Identification of the target species and by-catch of the Bay of Biscay mixed fishery and evaluation of alternative management strategies. <a href="#">link</a> <i>Head of the project:</i> Stéphanie Mahévas (Ifremer Nantes).	2019 - 2022
<b>EWG 22-01 - West Med closure areas</b> Working group aiming at identifying and evaluating the potential closure areas for the demersal species of the Western Mediterranean Sea.	2022
<b>Ifremer working group ‘Science with and for society’</b> Working group aiming at evaluating the interactions between science and society within Ifremer. It led to several surveys among researchers, post-doctoral and doctoral students and to internal reports for the Ifremer scientific direction.	2021 - 2022
<b>SMAC project - Sole of the Eastern English Channel</b> Project aiming at investigating stock structure of the Eastern English Channel and adapting management to the available knowledge on stock structure. <i>Head of the project:</i> Marie Savina-Rolland (Ifremer Lorient).	2019

## TECHNICAL SKILLS AND PACKAGES

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<b>Inference methods</b>	Maximum likelihood inference, Bayesian inference
<b>Languages</b>	R, C++, Java, Python, SQL
<b>Tools</b>	Git, LaTeX, TMB, R-INLA, JAGS, Nimble, PostgreSQL
<b>Packages</b>	<a href="#">FishMap</a>

## WORKSHOP, COURSEWORK AND OTHER CONFERENCES

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Statistical Methods for Spatial Data, STAT 554, University of Washington. by John Wakefield.	2023
Annual meeting of the Mexico network, Irstea, Bordeaux	2022
Finist’R workshop Bootcamp of State Of the R, organized by the MIA. Biological station of Paimpont. <a href="#">link</a>	2022
Stats aux sommets, MIA Paris, visio with an introduction to R-INLA and the SPDE approach by Thomas Opitz and Denis Allard.	2021

Finist'R workshop	2020
Bootcamp of State Of the R, organized by the MIA. Biological station of Roscoff. <a href="#">link</a>	
Numerical methods for stochastic differential equation, Centrale Nantes by Marie Billaud-Friess.	2019 - 2020

## GRANT

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<b>Grant for the international mobility of doctoral students</b>	2021
Grant obtained from Ifremer for the mobility at DTU Aqua (Danemark).	

## LAB AND DEPARTMENT COMMITMENT

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<b>Space-time seminars</b>	February 2023 - present
Organization of bimensual seminars with a focus on spatial and spatio-temporal statistics. <a href="#">link</a> (the website is currently being updated)	

<b>Amédée seminars</b>	2020-2021
organization of semestrial seminars with a focus on methodological development in fisheries science and marine ecology. <a href="#">link</a>	