

BAPTISTE ALGLAVE

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RESEARCH INTEREST

I am an applied statistician with a specific interest in spatio-temporal modeling and applications in marine ecology and environment. 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 for use in Marine Spatial Planning. Specifically, I developed methods to combine heterogeneous and massive data sources while accounting for preferential sampling of fisheries commercial data and difference in spatial resolution between the distinct data sources (change of support issues).

From January to June 2023, I was 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.

I am now assistant professor at the University Institute of Technology (IUT) in Vannes and at the Lab-STICC for research (DECIDE team). With the group focused on GIS, I am working on the interaction of urban landscape and climate. We aim at developing operational tools to help managers to plan urban areas in a context of land pressure, threat on ecosystems and climate change.

CURSUS

Associate professor

Since September 2023

Research laboratory in information and communication science and technology (Lab-STICC, CNRS UMR 6285), team DECIDE.
Université Bretagne Sud (UBS), IUT Vannes, cursus of Data Science.

Postdoc

January - June 2023

University of Washington, School of Aquatic and Fishery Sciences and NOAA
Project 1

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

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, Danemark. 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

CPGE - BCPST section

2014 - 2016

Janson de Sailly (Paris)

SCIENTIFIC PUBLICATIONS

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>

Olmos Maxime, Cao Jie, Thorson James T., Punt André E., Monnahan Cole C., Alglave Baptiste, Cody Szuwalski (2023). **A step towards the integration of spatial dynamics in population dynamics models: Eastern Bering Sea snow crab as a case study.** Ecological Modeling. <https://doi.org/10.1016/j.ecolmodel.2023.110484>

Under review

Rovellini Alberto, Punt André E., Kaplan Isaac, Fulton Elizabeth, Aydin Kerim, Alglave Baptiste, Baker Matthew R., Bryan Meaghan, Carroll Gemma, Ferriss Bridget, Haltuch Melissa A., Hayes Adam, Hermann Albert, McHuron Elizabeth, Surma Szymon and Dorn Martin (*under review*). **Incorporating key links between climate stressors and ecological processes in ecosystem models, with a case study from the Gulf of Alaska.**

In prep

Alglave Baptiste, Kristensen Kasper, Vermard Youen, Rivot Etienne, Woillez Mathieu, Etienne Marie-Pierre (*in prep*). **Inferring fine scale wild species distribution from spatially aggregated data.** [link](#)

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

Alglave Baptiste and Thorson James T. (*in prep*). **Identifying methodological bottlenecks for the developments of spatio-temporal decomposition methods.**

Szuwalski Cody, Alglave Baptiste, Olmos Maxime, Punt Andre, Veron Matthieu (*in prep*). **Integrating climate effects in multiple population processes for fisheries projections.**

TECHNICAL REPORTS

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

International conferences

Szuwalski Cody, Alglave Baptiste, Olmos Maxime, Punt Andre, Veron Matthieu. **Population feedback can modulate climate change impacts.** PICES-2023 Annual Meeting. November 2023, Seattle, USA.

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.** Ecostat 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

Statistics, fisheries management and spatial modelling: towards spatio-temporal stock assessment methods. 8th meeting of statistics. Data science for sea and coastal systems ([website](#)). Université Bretagne Sud. November 2023. [link](#)

Tardivy Juliette, Alglave Baptiste. **Cartographie des frayères des espèces halieutiques basée sur le croisement des données 'VMS x logbooks' et des données de campagnes scientifiques.** Seminar on fisheries functional zones ([website](#)). Ifremer Nantes. November 2023. [link](#)

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

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

Maximum likelihood estimation (BSc) 2023

IUT Vannes, cursus of data science (UBS).

Descriptive statistics (BSc) 2023

IUT Vannes, cursus of data science (UBS).

Introduction to spatio-temporal modeling for ecology (MSc) 2022

Institut Agro (Rennes). [slides](#) and [codes](#)

Student project in data science (MSc) 2020 - 2021

Institut Agro (Rennes).

Practical work in statistics for fisheries science (MSc) 2020

Institut Agro (Rennes).

Practical work in basics of probability theory (BSc) 2019 - 2020

University of Nantes.

PROJECTS AND WORKING GROUPS

ACLIM: The Alaska Climate Integrated Modeling Project January - June 2023

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. [link](#)

Head of the project: Kirstin Holsman (NOAA).

MACCO project	2019 - 2022
Identification of the target species and by-catch of the Bay of Biscay mixed fishery and evaluation of alternative management strategies. link	
<i>Head of the project:</i> Stéphanie Mahévas (Ifremer Nantes).	

EWG 22-01 - West Med closure areas	2022
Working group aiming at identifying and evaluating the potential closure areas for the demersal species of the Western Mediterranean Sea.	

Ifremer working group ‘Science with and for society’	2021 - 2022
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.	

SMAC project - Sole of the Eastern English Channel	2019
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).	

TECHNICAL SKILLS AND PACKAGES

Inference methods	Maximum likelihood inference, Bayesian inference
Languages	R, C++, Java, Python, SQL
Tools	Git, LaTeX, TMB, R-INLA, JAGS, Nimble, PostgreSQL
Packages	FishMap

WORKSHOP, COURSEWORK AND OTHER CONFERENCES

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	2022
Bootcamp of State Of the R, organized by the MIA. Biological station of Paimpont. link	
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. link	
Numerical methods for stochastic differential equation, Centrale Nantes by Marie Billaud-Friess.	2019 - 2020

GRANT

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

LAB AND DEPARTMENT COMMITMENT

Member of the department council of the department Data Science (IUT Vannes)	Since September 2023
Space-time seminars	January - June 2023
Organization of bimensual seminars with a focus on spatial and spatio-temporal statistics.	
Amédée seminars	2020-2021
Organization of semestrial seminars with a focus on methodological development in fisheries science and marine ecology. link	