







Colin Bouchard


Post-Doctorate


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 Website

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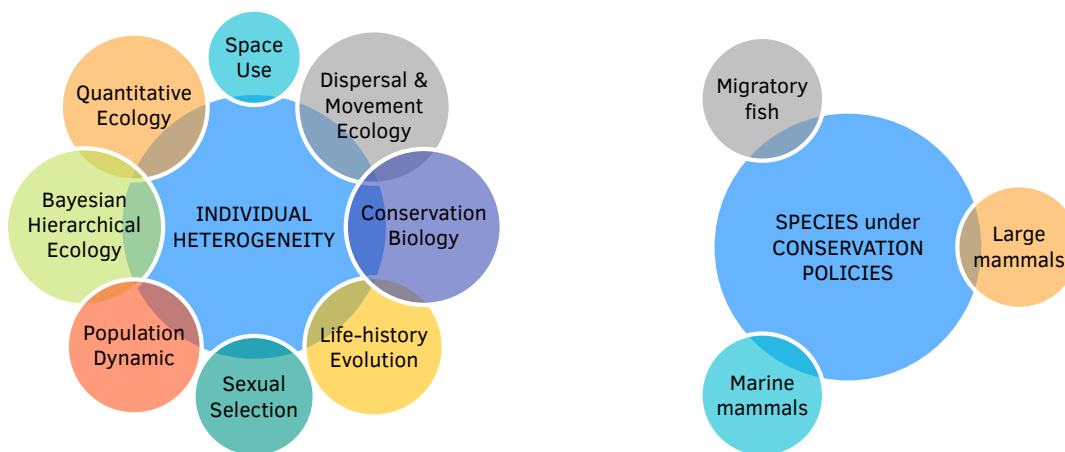
 ColinBouchard

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 Scholar

Research interests



Research Experience

2019 - 2020

Post-Doctorate

University of California at Berkeley (USA)

Group: Carlson Lab — Dpt. Environmental Science, Policy, and Management

Assess synchrony of several populations of Atlantic salmon under a metapopulation context

2015 - 2018

PhD. Candidate

University of Pau & Pays de l'Adour (UPPA)

Group: Behavioral Ecology and Fish Population Biology

In Atlantic salmon, space use of potential breeders stabilises population dynamics and shapes sexual selection.

- Investigate if **maturity level** of individuals involves changes in space use tactics and behavior that may impact their **reproductive success**.
- Infer the **sexual network** of anadromous population of salmon to evaluate the effect of **space use** tactics on individual's network and on the **sexual selection** (collaboration with Pr Pizzari - Oxford University)
- Assess the effects of **spatial aggregation** of nests on **population recruitment**.

• **Tools:** R, Stan, Jags, \LaTeX , Rmarkdown, QGIS

• **Methods:** Fish tagging, electric fishing, telemetry, behavioral survey,

• **Supervisors:** Agnès Bardonnet (INRA St-Pée / Nivelles), Cédric Tontelier (UPPA)

• *Management of the group of PhD students (2 years), delegate at the council of the Doctoral School, tweeting for the unit*

• *Participation in the monitoring of Allis shad spawning behavior with accelerometers*

2015 June - August	Mission head Group: System of observation for the conservation of marine mammals and seabirds <i>Strandings and collection of biological samples on dead stranded mammals</i>	PELAGIS Observatory - CNRS - University of La Rochelle
2015 January - May	Research intern Group: System of observation for the conservation of marine mammals and seabirds <i>Modeling and probabilistic prediction of Extreme Mortality Events : the case of marine mammals</i> Supervisor: Matthieu Authier	PELAGIS Observatory - CNRS - University of La Rochelle
2014 June - August	Mission head Group: System of observation for the conservation of marine mammals and seabirds <i>Standings and collection of biological samples on dead stranded mammals</i>	PELAGIS Observatory - CNRS - University of La Rochelle
2014 June - August	Research intern Group: Aquatic Ecology and global change <i>Effects of the ecological niche on the establishment of polymorphism among and within populations of <i>Perca fluviatilis</i></i> Supervisor: Julien Cucherousset	Laboraty of Ecology and Biological Diversity - CNRS - University of Toulouse III
2013 April - May	Research intern Group: System of observation for the conservation of marine mammals and seabirds <i>Temporal and spatial analysis of strandings of Harbor porpoise between 2002 and 2012 along french coasts</i>	PELAGIS Observatory - CNRS - University of La Rochelle
2012 April - July	Research intern Group: Saint-Hyacinthe Research and Development Centre <i>Study of the factors responsible for the syneresis of rennet gels from raw milk</i>	CRDA - Agriculture and Agri-Food Canada

Education

2015 - 2018	PhD, Population Biology and Evolutionary Ecology	University of Pau & Pays de l'Adour, France
2014 - 2015	MSc. Ecology Evolution, 2nd year, With honors	University of Toulouse III, France
2013 - 2014	MSc. Ecology, 1st year, With honors	University of Toulouse III, France
2012 - 2013	BSc. Marine Biology, With honors	University of La Rochelle, France

Skills

Management:	Project management and management of technical staff
Statistics:	Descriptive statistics, uni- and multi-variate analysis, parametric statistics, GLM, GAMM
Bayesian statistics:	Bayesian Hierarchical modeling, linear and mixed models, model formulation, selection and fit assessment
Models & distributions:	State-space model, Extreme Value Theory
CMR:	Capture-recapture field methods, CMR models and population dynamics
Behavioral surveys:	Behavioral studies, behavioral analysis, space use tactics
Field:	Fish sampling (electrofishing), tagging (PIT tag, external radio transmitter), radio tracking - acoustic telemetry - accelerometry, protocol drafting, internal examinations of dead stranded marine mammals

Computer skills

R · Rstudio · RMarkdown

LaTeX · Microsoft Office · Inkscape · Access

Stan · Jags · OpenBugs

QGIS · ArcGis · MapInfo

Teaching Experience

2016-2017 15 hours	Ecology Evolution Environment - Bachelor's degree: tutorials	University of Pau & Pays Adour
2016-2017 13 hours	Biostatistics - Bachelor's degree: tutorials	University of Pau & Pays Adour
2016-2017 13 hours	Stastical analysis of data - Bachelor's degree: workshops	University of Pau & Pays Adour
2016-2017 24 hours	Biology of Organisms - Bachelor's degree: workshops	University of Pau & Pays Adour

Peer-reviewed publications

In preparation

[1] **Bouchard C.**, Grant M.C., Tentelier. C, and T. Pizzari. Evaluating the local social structure and its effects on the pre-copulatory selection acting on Atlantic salmon males by inferring the population sexual network.

In review

[1] **Bouchard C.**, Lange F., Rives J., and C. Tentelier. Sexual maturity increases mobility and heterogeneity in individual space use affecting the likelihood of breeding site association in Atlantic salmon (*Salmo salar*) parr. *Journal of Fish Biology*

Published

[5] **Bouchard C.**, Bracken C., Dabin W., Van Canneyt O., Ridoux V., Spitz J., and M. Authier. **2019**. A risk-based indicator for marine mammal conservation: strandings and probabilistic forecast of extreme mortality events. *Conservation Letters*, **12** (4): 10. [Link](#)

[5 data] **Bouchard C.**, Bracken C., Dabin W., Van Canneyt O., Ridoux V., Spitz J., and M. Authier. **2019**. Data from: A risk-based indicator for marine mammal conservation: strandings and probabilistic forecast of extreme mortality events. *Data Dryad* [Link](#)

[4] Tentelier C., **Bouchard C.**, Bernardin A., Tauzin A., Aymes J.C., and J. Rives. The dynamics of spawning acts by a semelparous fish and its associated energetic expenses. *BioArXiv*, **preprint**. [Link](#)

[3] **Bouchard C.**, Bardonnnet A., Buoro M., Prévost E., and C. Tentelier. **2018**. Effects of spatial aggregation of nests on population recruitment: the case of a small population of Atlantic salmon. *Ecosphere*, **9** (4). [Link](#)

[2] Bacles C.F.E., **Bouchard C.**, Lange F., Manicki A., Tentelier C., and O. Lepais. **2018**. Estimating the effective number of breeders from single parr samples for conservation monitoring of wild populations of Atlantic salmon (*Salmo salar*). *Journal of Fish Biology*, **92**: 699-726. [Link](#)

[1] Giroux H., **Bouchard C.**, and M. Britten. **2014**. Combined effect of renneting pH, cooking temperature, and dry salting on the contraction kinetics of rennet-induced milk gels. *International Dairy Journal*, **35** (1): 70-74. [Link](#)

[1] Van Canneyt O., **Bouchard C.**, Dabin W., Demaret F. and G. Dorémus. *Les échouages de mammifères marins sur le littoral français en 2012*. Rapport UMS - Observatoire PELAGIS pour le Ministère de l'Écologie, du Développement Durable et de l'Énergie, Direction de l'eau et de la biodiversité, Programme Observatoire du Patrimoine Naturel : 51p. [Link](#)

Conferences, talks, and seminars

International scientific conferences

- July 2018 **ISEC 2018** University of Sant-Andrews, Scotland
International Statistical Ecology Conference
Poster: *Assessing the impacts of nest spatial aggregation on population productivity through four different stock-recruitment models.*
- June 2018 **EEEF 2018** Montréal, Canada
21st biennial Ecology and Evolutionary Ethology of Fishes meeting
Oral presentation: *Individual heterogeneity of space use tactics in salmon parr throughout the breeding season in relation to the maturity level*
- July 2017 **Fisheries Society of the British Isles (FSBI)** University of Exeter, France
50th anniversary symposium: "understanding fish populations"
Oral presentation: *Impacts of nest spatial aggregation on population productivity: the case of a small population of atlantic salmon (Salmo salar)*
- March 2017 **NoWPaS** Shaftesbury, England
European Workshop of PhD and Post-Doctoral fellows on anadromous Salmonids
Oral presentation: *Impacts of spatial aggregation of redds on the recruitment: example in a small population of Atlantic salmon (Salmo salar)*

Talks and seminars

- May 2018 **Annual meeting on salmonids (SPAM)** Rennes, France
Seminar of the INRA Division EFPA
Oral presentation: *Maturity increases mobility & heterogeneity in individual space use in Atlantic salmon*
- May 2017 **Annual meeting on salmonids (SPAM)** Saint-Pée sur Nivelle, France
Seminar of the INRA Division EFPA
Oral presentation: *Effects of spatial aggregation of redds on the recruitment: example in a small population of Atlantic salmon (Salmo salar)*

Grants

- 2019 **e2s UPPA — energy environment solutions, Université de Pau & Pays de l'Adour**
Post-Doctorate of excellence — €34,000
- 2018 **INRA — Department "Écologie des forêts, prairies et milieux aquatiques**
International mobility grant for the collaboration with T. Pizzari at the Oxford University — €2,000

Professional societies

British Ecological Society (BES), Fisheries Society of the British Isles (FSBI), Société Française d'Écologie (SFE)

Languages

French: mother tongue

English: fluent in all aspects

Interests

Mountain hiking, Rugby, Tennis, Photography, Scuba-diving, First-aid

Referees

Matthieu Authier	Pelagis Observatory, <i>System of observation for the conservation of marine mammals and seabirds</i> CNRS - ULR, France matthieu.authier@univ-lr.fr	
Mathieu Buoro	UMR Ecobiop, <i>Behavioral Ecology and Fish Population Biology</i> mathieu.buoro@inra.fr	INRA - UPPA, France
Cédric Tentelier	UMR Ecobiop, <i>Behavioral Ecology and Fish Population Biology</i> cedric.tentelier@univ-pau.fr	INRA - UPPA, France