

TAREK HATTAB

N°7, Rue de Boston, Boulogne-sur-Mer, France

Tel: +33 (0) 6 35 81 75 27 e-mail: hattab.tarek@gmail.com

Web: <http://tarekhattab.webnode.fr/>

ResearchGate: https://www.researchgate.net/profile/Tarek_Hattab

Postdoc in Marine Ecology

Research fields: Macroecology, Spatial Ecology, Ecoinformatics, Food webs, Biostatistics, Conservation biogeography, Food web modelling

Education

2011-2014: PhD in Ecosystem Ecology

- PhD Program Jointly-Awarded supervised by France and Tunisia: Doctoral degree in Ecosystems Ecology from the University of Montpellier 2 and Doctoral degree in Fisheries Science from National Agronomic Institute of Tunisia
Graduation with highest honours

2009-2011: Master's degree in marine ecology

- Master 2 research in Production and Aquatic Ecosystems from National Agronomic Institute of Tunisia
Graduation with highest honours

2004-2009: Engineering diploma in fisheries sciences

- Engineering Studies at the National Agronomic Institute of Tunisia
Graduation with honours

Relevant skills

- Programming in R, C++ and Unix-shell
- Geographical Information System: R, GRASS (Geographic Resources Analysis Support System), GDAL (Geospatial Data Abstraction Library), GEOS (Geometry Engine, Open Source), QGIS, ARCGIS
- Advanced Biostatistics: univariate and multivariate statistics
- Informatics skills: Linux, MS-windows
- Languages: French and Arabic (native speaker), English (working languages)

Research and work experience

2017: Postdoctoral Researcher in Marine Ecology: Laboratory of Oceanology and Geosciences, Wimereux, France

- "Ecological niche modelling of coastal marine communities" supervised by Dr. Grégory Beaugrand

January 2015- December 2016: Postdoctoral Researcher in Ecoinformatics: University of Picardy Jules Verne, Amiens, France

- "Fine-grained modelling of biological invasions" supervised by Dr. Jonathan Lenoir

July-December 2014: Research Engineer: Institute of Research for Development, Tunis, Tunisia

- "Food web modelling of coastal marine communities under climate change" supervised by Dr. François Le Loc'h

April-May 2014: Research Engineer: UMR 6539 LEMAR (CNRS/UBO/IRD/IFREMER), Brest, France

- "Phylogeography of coastal Mediterranean fishes" supervised by Dr. François Le Loc'h

Fellowships and awards

2017: Runner-up of the Ecography E4 award (The Ecography Award for Excellence in Ecology and Evolution).

2011-2014: Doctoral scholarship from the French Research Institute for Development (IRD/France)

2014: Best Student Oral Presentation Award at the 3rd Meeting of Tunisian-French Ichthyologists

2010: Awarded at the Intergovernmental Oceanographic Commission of UNESCO (IOC) 50th Anniversary Fellowship for Young African Leaders on Climate Change Studies

Dissertations

2014: Thesis: “Global change impacts on southern Mediterranean exploited assemblages, application to the Gulf of Gabes (Tunisia): from niche modelling to trophic consequences”

Thesis supervisor: Dr. Philippe Cury, Prof. Mohamed Salah Romdhane

2011: Master thesis “Modelling fishery resources in the Gulf of Gabes under a global change scenario”

Supervisors: Dr. C. Sammari and Prof. M.S Romdhane, Marine Environment Laboratory, National Institute of Marine Sciences and Technologies, Tunisia

2009: Engineering thesis “Vulnerability of a future Marine Protected Area to global change: mapping and spatial modelling”

Supervisors: Dr. F. Ben Rais Lasram, National Agronomic Institute of Tunisia

Peer-reviewed publications

Submitted or in revision:

21 Ewald, M., Aerts, R., Lenoir, J., Fassnacht F., Nicolas, M., Skowronek, S., Piat, J., Honnay, O., Garzón-López, C., Feilhauer, H., Van De Kerchove, R., Somers, B., **Hattab, T.**, Rocchini, D., Schmidlein, S (submitted). LiDAR derived forest structure data improves predictions of leaf N and P concentrations from imaging spectroscopy. *Remote Sensing of Environment*. (IF=5.99)

20 Wasof, S., Lenoir, J., **Hattab, T.**, Jamoneau, A., Gallet-Moron, E., Saguez, R., Bennsadek, L., Bertrand, R., Valdès, A., Decocq, G (under revision). Traits of dominant species and species' ecological niche matter more than diversity in explaining aboveground biomass of forest herb layer. *Journal of Ecology*. (IF=6.1)

19 **Hattab, T.**, Ewald, M., Skowronek, S., Aerts, R., Garzón-López, C., Horen, H., Brasseur, B., Gallet-Moron, E., Spicher, F., Decocq, G., Feilhauer, H., Honnay, O., Kempeneers, P., Schmidlein, S., Somers, B., Van De Kerchove, R., Rocchini D., and Lenoir, J (under revision). An unified framework to model the potential and realized distributions of invasive species within the invaded range. *Diversity and Distributions*. (IF=4.5)

Published:

18 Aerts, R., Ewald, M., Skowronek, S., Lenoir, J., **Hattab, T.**, Garzon, C., Feilhauer, H., Schmidlein, S., Rocchini, D., Decocq, G., Somers, B., Van De Kerchove, R., Deneff, K., and Honnay, O (submitted). Invasion by the Alien Tree *Prunus serotina* Alters Ecosystem Functioning in a Temperate Deciduous Forest. *Frontiers in Plant Science*. 8:179. doi:10.3389/fpls.2017.00179. (IF= 4.4)

17. Lenoir, J[#], **Hattab, T[#]**, Guillaume, P (accepted). Climatic refugia within anthropogenetically-disturbed lowland ecosystems: implications for species distribution modelling. *Ecography*. DOI 10.1111/ecog.02788. (IF= 5.3)

16. Skowronek, S., Ewald, M., Isermann, M., Van De Kerchove, R., Lenoir, J., Aerts, R., Warrie, J., **Hattab, T.**, Honnay, O., Schmidlein, S., Rocchini, D., Somers, B., Feilhauer, H (accpeted). Mapping an invasive bryophyte species using hyperspectral remote sensing data. *Biological Invasions*. DOI: 10.1007/s10530-016-1276-1. (IF=2.8)
15. Halouani, G., Ben Rais Lasram, F., Shin, Y.J., Velez, L., Verley, P., **Hattab, T.**, Oliveros-Ramos, R., Ménard, F., Diaz, F., Baklouti, M., Guyennon, A., Romdhane, M.S., Le Loc'h, F (2016). Modelling food web structure using an End-to-End approach in the coastal ecosystem of the Gulf of Gabes (Tunisia). *Ecological Modelling*. 339, 45-57. (IF=2.2)
14. Bertrand, A., Habasque, J., **Hattab, T.**, Hintzen, N., Ramos, R.O., Gutiérrez, M., Demarcq, H., Gerlotto, F (2016). 3-D habitat suitability of jack mackerel *Trachurus murphyi* in the Southeastern Pacific, a comprehensive study. *Progress in Oceanography*. 146, 199-2011. (IF=3.5)
13. Abdou, K., Halouani, G., **Hattab, T.**, Romdhane, M.S., Ben Rais Lasram, F & Le Loc'h, F (2016). Exploring the effects of Marine Protected Areas on ecosystem's trophic functioning using Ecospace model: A model for the Gulf of Gabes. *Aquatic Living Resources*. 29 (2), 202. (IF=1.3)
12. Halouani, G., Abdou, K., **Hattab, T.**, Romdhane, M.S., Ben Rais Lasrama, F & Le Loc'h F (2016). A spatio-temporal ecosystem model to simulate Fishing Management Plans: A case of study in the Gulf of Gabes (Tunisia). *Marine Policy*, 69, 62–72. (IF=2.6)
11. **Hattab, T.**, Leprieur, F., Ben Rais Lasram, F., Gravel, D., Le Loc'h, F & Albouy, C (2016). Forecasting fine-scale changes in the food-web structure of coastal marine communities under climate change, *Ecography*. DOI: 10.1111/ECOG.01937, 2016. (IF= 5.3)
10. Ben Rais Lasram, F., **Hattab, T.**, Halouani, G., Romdhane, M.S., Le Loc'h, F & Albouy, C (2016). Cumulative human threats on fish biodiversity components in Tunisian waters. *Mediterranean Marine Science*, 17, 190-201. (IF= 1.9)
9. Coll, M., Shannon, L.J., Kleisner, K., Juan-Jordá, M., Bundy, A., Akoglu, A., Banaru, D., Boldt, L., Borges, M., Cook, A., Diallo, I., Fu, C., Fox, C., Gascuel, D., Gurney, L., **Hattab, T.**, Heymans, J., Jouffre, D., Knight, B., Kucukavsar, S., Large, S., Lynam, C., Machias, A., Marshall, K., Masski, H., Ojaveer, H., Piroddi, C., Tam, J., Thiao, D., Thiaw, M., Torres, M., Travers-Trolet, M., Tsagarakis, K., Tuck, I., Van der Meeren, G., Yemane, D., Zador, S. & Shin, Y (2016). Ecological indicators to capture the effects of fishing on biodiversity and conservation status of marine ecosystems. *Ecological Indicators*, 60, 947–962. (IF= 3.2)
8. **Hattab, T.**, Albouy, C., Ben Rais Lasram, F., Loc'h, L., Guilhaumon, F. & Leprieur, F (2015). A biogeographical regionalization of coastal Mediterranean fishes. *Journal of Biogeography*, 42, 1336–1348. (IF= 4.0)
7. Ben Rais Lasram, F., **Hattab, T.**, Halouani, G., Romdhane, M.S. & Le Loc'h, F (2015). Modeling of Beta Diversity in Tunisian Waters: Predictions Using Generalized Dissimilarity Modeling and Bioregionalisation Using Fuzzy Clustering. *PloS one*, 10, e0131728. (IF= 3.1)
6. Halouani, G., Gascuel, D., **Hattab, T.**, Lasram, F.B.R., Coll, M., Tsagarakis, K., Piroddi, C., Romdhane, M.S. & Le Loc'h, F (2015). Fishing impact in Mediterranean ecosystems: an EcoTroph modelling approach. *Journal of Marine Systems*, 150, 22–33. (IF= 2.2)
5. **Hattab, T.**, Albouy, C., Ben Rais Lasram, F., Somot, S., Loc'h, L. & Leprieur, F (2014). Towards a better understanding of potential impacts of climate change on marine species distribution: a multiscale modelling approach. *Global Ecology and Biogeography*, 23, 1417–1429. (IF= 5.8)
4. **Hattab, T.**, Ben Rais Lasram, F., Albouy, C., Romdhane, M.S., Jarboui, O., Halouani, G., Cury, P. & Le Loc'h, F (2013). An ecosystem model of an exploited southern Mediterranean shelf region (Gulf of Gabes, Tunisia) and a comparison with other Mediterranean ecosystem model properties. *Journal of Marine Systems*, 128, 159–174. (IF= 2.2)
3. **Hattab, T.**, Ben Rais Lasram, F., Albouy, C., Sammari, C., Romdhane, M.S., Cury, P., Leprieur, F.

& Le Loc'h, F (2013). The use of a predictive habitat model and a fuzzy logic approach for marine management and planning. *PloS one*, 8, e76430. (IF= 3.1)

2. **Hattab, T.**, Jamet, C., Sammari, C. & Lahbib, S (2013) Validation of chlorophyll- α concentration maps from Aqua MODIS over the Gulf of Gabes (Tunisia). comparison between MedOC3 and OC3M bio-optical algorithms. *International Journal of Remote Sensing*, 34, 7163–7177. (IF= 1.6)

1. Shin, Y.J., Bundy, A., Shannon, L.J., Blanchard, J.L., Chuenpagdee, R., Coll, M., Knight, B., Lynam, C., Piet, G., Richardson, A.J. & **the IndiSeas Working Group** (2012). Global in scope and regionally rich: an IndiSeas workshop helps shape the future of marine ecosystem indicators. *Reviews in Fish Biology and Fisheries*, 22, 835–845. (IF= 3.2)

Co-First Authorship

Oral presentations and posters

Oral presentations:

Closset-Kopp, D., **Hattab, T.**, Decocq, G. Local vs. global drivers of vegetation changes in the herb layer of a temperate forest over the last four decades. *SFÉcologie 2016 International Conference on Ecological Sciences*, Marseille, France, 24-28 October 2016.

Ewald, M., Skowronek, S., Aerts, R., Van De Kerchove, R., Kempeneers, P., Honnay, O., Lenoir, J., **Hattab, T.**, Somers, B., Feilhauer, H., Rocchini, D., Schmidtlein, S. Using remote sensing to quantify the ecosystem impact of invasive plant species. *GEO BON Open Science Conference*, Leipzig, Germany, 4-6 July 2016.

Hattab, T., Rocchini, D., Somers, B., Gallet-Moron, E., Guillaum, D., Feilhauer, H., Warrie, J., Ewald, M., Honnay, O., Kempeneers, P., Aerts, R., Van De Kerchove, R., Skowronek, S., Schmidtlein, S. & Lenoir, J. Modelling of habitat suitability and population dynamics of an invasive plant with advanced remote sensing data. *58th Annual Symposium of the International Association for Vegetation Science*, Brno, Czech Republic, 19-24 July 2015.

Niquil, N., Tecchio, S., Chaalali, A., **Hattab, T.**, Safi, G., Astorg, L., Halouani, G., Raybaud, V., Beaugrand, G., Bopp, L., Dauvin, J., Saint-Béat, B., Lassalle, G., Lobry, J., Lynam, C., Piroddi, C., Patrício, J., Heymans, J., Chifflet, M. & Le Loc'h, F. Ecological network analysis indices sensitivity to different human impacts (climate change, fisheries, harbour extension): a methodological perspective. *Aquatic Sciences Meeting*, Granada, Spain, 22-27 February 2015.

Reygondeau, G., Albouy, C., **Hattab, T.**, Benedetti, F., Irisson, J.-O., Ayata, S.D., Gasparini, S., Mckenzie, B., Guieu, C. & Koubbi, P. Mediterranean biodiversity (from phytoplankton to top predators) and present threats. *International Council for the Exploration of the Sea Annual Science Conference*, Malaga, Spain, 15-17 September 2014.

Reygondeau, G., Albouy, C., **Hattab, T.**, Benedetti, F., Irisson, J.-O., Ayata, S.D., Gasparini, S., Mckenzie, B., Guieu, C. & Koubbi, P. Present Status of Mediterranean marine biodiversity and potential threat. *Sustainability Science Congress*, Copenhagen, Denmark, 22-24 October 2014.

Hattab, T., Albouy, C., Ben Rais Lasram, F., Somot, S., Le Loc'h, F. & Leprieur, F. Extinction risk in the Gulf of Gabes under climate change and habitat loss: a multiscale modelling approach. *9th Maghrebien Congress of Marine Sciences*, Sousse, Tunisia, 20-23 December 2014.

Hattab, T., Ben Rais Lasram, F., Albouy, C., Romdhane, M.S., Jarboui, O., Halouani, G., Cury, P., Le Loc'h, F. Modélisation écotrophique du fonctionnement et de la structure de l'écosystème du golfe de Gabès et analyse des impacts de la pêche. *15th Tunisian days of Marine Sciences*, Mahdia, Tunisia, 14-17 December 2013.

Halouani, G., Le Loc'h, F., **Hattab, T.**, Romdhane, M.S., Ben Rais Lasram, F. Simulations trophodynamiques de l'impact de la pêche sur le fonctionnement de l'écosystème du golfe de gabes et analyse de l'efficacité des mesures de gestion. *15th Tunisian days of Marine Sciences*, Mahdia,

Tunisia, 14-17 December 2013.

Halouani, G., **Hattab, T.**, Ben Rais Lasram, F., Le Loc'h, F., Romdhane, M.S. A trophodynamic approach for the evaluation of fishery management plans in the Gulf of Gabes (Southern Tunisia). 40th CIESM Congress, Marseille, France, 28 October - 1 November 2013.

Hattab, T., Ben Rais Lasram, F., Sammari, C., Romdhane, M.S., Albouy, C., Cury, P., Leprieur, F., Le Loc'h F. Predictive habitats modelling for marine spatial planning. Global Congress on Integrated Coastal Management, Marmaris, Turkey, 30 October-3 November 2013.

Lahbid, S., **Hattab, T.**, Sammari, C. Marine and Coastal Database Management and Geographical Information System - Contribution for marine research: Case of gulf of Gabes, Tunisia. CoastGIS Conference, Oostende, Belgium, 5-8 September 2011.

Invited presentation:

Hattab, T. Forecasting changes in the food-web structure of coastal marine assemblages. EU cost action on conservation physiology of marine fishes. Montpellier France, 19-20 May 2015.

Seminars:

Hattab, T., Albouy, C., Ben Rais Lasram, F., Somot, S., Le Loc'h, F. & Leprieur, F. D'une modélisation globale des niches écologiques à une modélisation locale des habitats : une approche multi-échelles pour le Golfe de Gabès dans un contexte de changements climatiques. Scientific Days of INAT, Tunis, Tunisia, 20-21 May 2014.

Hattab, T. Modelling fishery resources habitat in the Gulf of Gabes and projections under a global change scenario. International seminar of the Intergovernmental Oceanographic Commission: Does climate change and human activities have accelerators impact? Rabat, Morocco, 8 June 2011.

Hattab, T. National Priorities for Further Implementing Adaptation to Climate Change of Tunisia. Young African Leaders for Long-Term Adaptation to Climate Change on Ocean and Coastal Zones of Africa. Nairobi, Kenya, 3-4 November 2010.

Hattab, T. Rais C, Ben Rais Lasram F. Habitat modeling as a conservation tool in a global change context: the case of the Bay of Malloula a future marine protected area (North West Tunisia) 16th days of scientific-agricultural research results. Hammamet, Tunisia, 2 et 3 December 2009.

Posters:

Skowronek, S., Ewald, M., Aerts, R., Warrie, J., Van De Kerchove, R., Kempeneers, P., Honnay, O., Lenoir, J., **Hattab, T.**, Somers, B., Schmidlein, S., Rocchini, D., Asner, G., Feilhauer, H. Mapping invasive plant species with a combination of field and remote sensing data. American Geophysical Union Meeting. San Francisco, United States, 12-16 December 2016.

Safi, G., Vouriot, P., Arroyo, N.L., Féral, J.P., **Hattab, T.**, Lamare, S., Mialet, B., Niquil, N., Petit, L., Preciado, I., Serre, S., Le Loc'h, F. Describing the Bay of Biscay's continental shelf food-web using an OSPAR common indicator: the Mean Trophic Level indicator. The XV International Symposium on Oceanography of the Bay of Biscay (ISOBAY 15). Bilbao, Spain, 22-24 June 2016.

Skowronek, S., Ewald, M., Aerts, R., Warrie, J., Van De Kerchove, R., Kempeneers, P., Honnay, O., Lenoir, J., **Hattab, T.**, Somers, B., Schmidlein, S., Rocchini, D., Feilhauer, H. Mapping invasive plant species with a combination of field and remote sensing data. European Space Agency Living Planet Symposium. Prague, Czech Republic, 9-13 May 2016.

Sammet, F., Skowronek, S., Aerts, R., Asner, G., Ewald, M., **Hattab, T.**, Honnay, O., Kempeneers, P., Lenoir, J., Rocchini, D., Schmidlein, S., Somers, B., Van De Kerchove, R., Warrie, J., Feilhauer,

H. Mapping the invasive plant *Rosa rugosa* with hyperspectral data and One-Class Support Vector Machines. *European Space Agency Living Planet Symposium*. Prague, Czech Republic, 9-13 May 2016.

Hattab, T., Rocchini, D., Kempeneers, P., Van De Kerchove, R., Somers, B., Honnay, O., Aerts, R., Warrie, J., Feilhauer, H., Skowronek, S., Schmidtlein, S., Ewald, M., Gallet-Moron, E., Decocq, G., Lenoir, J. Integrating advanced remote sensing data into a multi-scale Species Distribution Model (SDM) coupled with a population model to predict the invasion dynamic of a non-native plant. *Species On the Move*, Hobart, Tasmania, 9-12 February 2016.

Abdou, K., Halouani, G., **Hattab, T.**, Ben Rais Lasram, F., Romdhane, M.S. & Le Loc'h, F. (2014) The use of ecospace model as a simulation tool for fisheries management plans: case of the Gulf of Gabes. *Ecopath 30 Years Conference*, Barcelona, Spain, 4-14 November 2014.

Halouani, G., Gascuel, D., **Hattab, T.**, Ben Rais Lasram, F., Coll, M., Tsagarakis, K., Piroddi, C., Romdhane, M.S. & Le Loc'h, F. How Fishing impacts Mediterranean marine ecosystems? An EcoTroph modeling approach. *Ecopath 30 Years Conference*, Barcelona, Spain, 4-14 November 2014.

Scientific reports

Reygondeau, G., Irisson, J.O., Ayata, S.D., Gasparini, S., Benedetti, F., Albouy, C., **Hattab, T.**, Guieu, C & Koubbi, P (2014). Definition of the Mediterranean eco-regions and maps of potential pressures in these eco-regions. *Policy-oriented marine Environmental Research in the Southern European Seas*. Editors: Xavier Durrieu de Madron, Evangelis Papathanassiou.

Hattab, T., Ben Rais Lasram, F & Sammari, C (2011) Modélisation de l'habitat des ressources halieutiques dans le golfe de Gabès et projections selon un scénario de changement global. *Bulletin de l'Institut National des Sciences et Technologies de la Mer*, 55, 38–64.

Book chapter

Moullec, F., Ben Rais Lasram, F., Coll, M., Guilhaumon, F., Halouani, G., **Hattab, T.**, Le Loc'h, F., Shin Y.J (2016). Climate change impacts on marine ecosystems and resources: From individual to ecosystem responses. *The Mediterranean Region under Climate Change: A Scientific Update*. pp 229- 248. IRD Editions/AllEnvi. ISBN : 978-2-7099-2219-7

Teaching and student supervision

Teaching:

2016: Introduction to R Programming, University of Picardy Jules Verne (10 hours)
Reference: **Jonathan Lenoir:** jonathan.lenoir@u-picardie.fr

2014: Ecosystem Modelling, National Agronomic Institute of Tunisia (2 hours)
Reference: **Frida Ben Rais Lasram:** frida.lasram@gmail.com

2014: Numerical Ecology with R Training Course, National Agronomic Institute of Tunisia (24 hours)
Reference: **Frida Ben Rais Lasram:** frida.lasram@gmail.com

2013: Marine Species Distribution Modelling Training Course, National Agronomic Institute of Tunisia (24 hours)
Reference: **Frida Ben Rais Lasram:** frida.lasram@gmail.com

2012: Undergraduate Teaching: Methods and Tools in Marine Ecology, University of Montpellier 2 (3 hours)
Reference: **Philippe Deleporte:** philippe.deleporte@cirad.fr

2012: Undergraduate Teaching: Ecosystem Approach to Marine Exploited Resources, University of

Montpellier 2 (2 hours)

Reference: **François Le Loc'h**: francois.le.loch@ird.fr

2012: Geographical Information System Workshop, Marine Biology Summer Course, Tabarka, National Agronomic Institute of Tunisia (4 hours)

Student supervision:

2015: Master student supervision: Chloé Lesur

2013-2014: Master students co-supervision: Halouani Ghassen and Abdou Khaled

2010-2011: Co-supervision of graduation project of engineering students (4 students)

Training

2012: Pedagogical training: Didactic approach for modern teaching (1 week)

2012: Oriented Object Programming, probabilistic modelling and numerical methods of statistics, University of Montpellier 2 (2 weeks)

2012: GlobWetland II, Global Wetlands Observing System implementation, KEYOBS SA, Tunisia (1 week)

2011: Validation of SeaWiFS and MODIS chlorophyll-a concentration map in the Gulf of Gabes, Laboratory of Oceanology and Geosciences, Université du Littoral côte d'Opale, France (2 months)

2010: The use of Generalized Linear Models (GAM) and Generalized Additive Models (GAM) in species distribution models. Agrocampus Ouest Rennes, France (1 week)

2009: Implementation of a marine and coastal Geographical Information System and a Geographic Metadata Catalog (Geonetwork open source) in the context of CANTICO project « Climate and ANthropogenic drivers and impacts for the Tunlsian and COastal area » (CIRCLE European program). National institute of marine sciences and technologies, Tunisia (3 months)

Miscellaneous

- Member of IndiSeas project Working Group (A selection of indicators for evaluating and communicating ecosystem status) <http://www.indiseas.org/>
- Peer-review referee for Global Ecology and Biogeography, Journal of Biogeography, Global Change Biology, Aquatic Living Resources, Ecography and Ecology and Evolution
- Scuba diving first level certification (CMAS)
- Research assistant in cruises on R/V Hannibal, Recovery and installation of oceanographic mooring devices

References

- **Dr. François Le Loc'h**,
Marine food webs, IRD, UMR 6539 LEMAR, Brest, France
Email: francois.le.loch@ird.fr Phone: +33 (0) 2 98 49 87 01
- **Dr. Jonathan Lenoir**,
Biostatistics , University of Picardy Jules Verne, FRE-3498 CNRS, Amiens, France
Email : jonathan.lenoir@u-picardie.fr Phone : +33 (0) 3 22 82 78 18
- **Dr. Fabien Leprieur**,
Macroecology, UM2, UMR 9190 MARBEC, Montpellier, France
Email: fabien.leprieur@univ-montp2.fr Phone: +33 (0) 4 67 14 39 26