

GEMA HERNAN MARTINEZ

Postdoctoral Fellow

gema.hernanm@gmail.com

www.gemahernan.com

<https://orcid.org/0000-0002-0806-9729>

EDUCATION

- 2012 - 2017 **University of the Balearic Islands**- Mallorca, SPAIN
Ph.D. - Marine Ecology
Ph.D. dissertation: "Defense strategies against herbivory in seagrasses"
- 2010 - 2011 **University of Barcelona** - IDAEA CSIC - Barcelona, SPAIN
M.Sc. - Marine science: oceanography and coastal management
Master thesis: "Persistent organic pollutants in the marine environment"
- 2002 - 2008 **Complutense University of Madrid** - Madrid, SPAIN
B.Sc - Biological Sciences
Undergraduate thesis: "Intertidal benthonic fauna in Combarro beach "

POSITIONS AND EMPLOYMENT

- 2021-current **Postdoctoral Fellow**. University of the Balearic Islands- Mediterranean Institute for Advanced Studies. Supervisor: Fiona Tomas
- 2018-2020 **Postdoctoral Associate**. Florida State University. Department of Biological Science. Supervisor: Andrew Rassweiler.
- 2018 **Regional Fisheries Observer**. International Commission for the Conservation of Atlantic Tunas (ICCAT)-MRAG, Ltd. (19 days at sea).
- 2017 **Visiting Scholar**. Oregon State University.
Effects of different macrophytic diets on herbivore microbiome and fitness.
- 2012 - 2017 **Ph.D. Research Assistant**. Mediterranean Institute for Advanced Studies (Spain). Department of Ecology and Marine Resources.
Seagrass restoration through seedlings: effects of light, nutrients and herbivory.
Better comprehension of seagrass functioning and resilience to local perturbations.
- 2015 **Visiting Scholar**. Oregon State University.
Latitudinal effects of defense strategies against herbivory in the seagrass *Zostera marina*.
- 2016 **Visiting Scholar**. Universidad Nacional Autónoma de México (México).
Photobiology of the seagrass *Halodule wrightii*.

2014 **Visiting Scholar.** Stazione Zoologica Anton Dohrn (Ischia, Italy).
Fish herbivory under a gradient of ocean acidification.

2012 **Research Assistant.** Centre of Marine Science (University of Algarve, Portugal)-Centre for Advanced Studies of Blanes (Spain)
Independent and interactive effects of increased CO₂ and nutrients on seagrass-herbivore interactions.

2011 - 2012 **Research Assistant.** Institute of Environmental Assessment and Water Research. (Spain). (45 days at sea).

2009 - 2010 **Research Assistant.** National Institute for agricultural and food research and technology. Laboratory of Medicinal and Aromatic Plants.

2007-2010 **Environmental and scientific outreach.** Mundo Azul Medio ambiente.
Workshops and outdoor activities with students from 3 to 17 years

PUBLICATIONS

Manuscripts in preparation (only as first author)

[21] **Hernán G.**, Rodriguez E., Tomas, F. The role of vegetated coastal systems in the accumulation of microplastics. (to be submitted to Science of the total environment)

[20] **Hernán G.**, Dubel, A. McHenry, J., Lester, S.E. and Rassweiler, A. Changes in coastal fish distribution along the Gulf coast of Florida: 15 years of in situ data. (to be submitted to Journal of Ecology)

Published

[19] McHenry, J., Rassweiler, **Hernán G.**, A K Dubel, A. Curtin, C., Varias, N. and Lester, S.E.. Geographic variation in organic carbon storage by seagrass beds. *Limnology and Oceanography* (in press) doi:10.1002/lno.12343

[18] Máñez-Crespo J, Tomas F., Fernandez-Torquemada Y., Royo L., Espino F., Antich L., Bosch N. E., Castejón I., **Hernan G.**, Marco-Méndez C., Mateo-Ramírez A., Pereda-Briones L., del Pilar-Ruso Y., Terrados J., Tuya F. (2022): Variation in fish abundance, diversity and assemblage structure in seagrass meadows across the Atlanto-Mediterranean province. *Diversity* 14 (10), 808. doi: 10.3390/d14100808

[17] Mateo-Ramírez, A., MáñezCrespo, J., Royo L., Tuya, F., Castejon, I., **Hernan, G.**, Pereda-Briones, L., Terrados, J., and Tomas, F. (2022): A tropical macroalga (*Halimeda incrassata*) enhances diversity and abundance of epifaunal assemblages in Mediterranean seagrass meadows. *Front. Mar. Sci.* 9:886009. doi: 10.3389/fmars.2022.886009

[16] **Hernán G.**, Dubel, A., Caselle, J., Kushner, D., Miller, R.J., Reed, D.C., Sprague, J.L. and Rassweiler, A. (2022): Measuring the efficiency of alternative biodiversity monitoring sampling strategies. *Front. Mar. Sci.* 9: 820790

- [15] **Hernán G.**, M.J. Ortega and F. Tomas. (2022): Specialized compounds across ontogeny in the seagrass *Posidonia oceanica*. *Phytochemistry* 196, doi:10.1016/j.phytochem.2021.113070 44/235
- [14] González L., Vásquez R., López T., **Hernán G.**, Iglesias-Prieto R., Enriquez, S. (2021): Validation of parameters and protocols derived from chlorophyll a fluorescence commonly utilized in marine ecophysiological studies. *Funct. Plant Biol.* doi: 10.1071/FP21101 IF 3.101 70/235 Plnt sciences
- [13] McHenry J., Rassweiler A., **Hernán G.**, Uejio C.K., Pau S., Dubel A.K., Lester S.E. (2021): Modelling the biodiversity enhancement value of seagrass beds. *Divers. Distrib.* 00,1-14. doi:10.1111/ddi.13379
- [12] **Hernán G.**, M.J. Ortega, J. Henderson, J. Alos, K. Boyer, S. Cimon, V. Combes, M. Cusson, A. Dennert, C. Hereu, M. Hessing-Lewis, K. Hovel, P. Jorgensen, S. Kiriakopolos, N. Kollars, M. O'Connor, J. Olsen, P.L. Reynolds, J. Ruesink, E. Voigt and F. Tomas,(2021): Latitudinal variation in plant defence against herbivory in a marine foundation species does not follow a linear pattern: The importance of resource availability. *Global Ecol Bioeogr.* 30:220-234 doi:10.1111/geb.13217
- [11] Máñez-Crespo, J., Tuya, F., Fernández-Torquemada, Y., Royo, L., del Pilar-Ruso, Y., Espino, F., Manent, P., Antich L., Castejón, I., Curbelo, L., de la Ossa J.A., Hernan, G., Mateo-Ramírez, A., Pereda-Briones, L., Jiménez-Ramos, R., Egea, L.G., Procaccini, G., Terrados, J., Tomas, F.(2020) Seagrass *Cymodocea nodosa* across biogeographical regions and times: Differences in abundance, meadow structure and sexual reproduction. *Mar. Environ. Res.* 162:105159 doi:10.1016/j.marenvres.2020.105159
- [10] Lester, S.E., Dubel, A., **Hernán G.**, McHenry, J. and Rassweiler A., (2020): Spatial planning principles for marine ecosystem restoration. *Front. Mar. Sci.* 7:328. doi: 10.3389/fmars.2020.00328
- [9] Rassweiler, A., Dubel, A., **Hernán, G.**, Kushner, J.D., Caselle, J.E., Sprague, J.L., Kui, L., Lamy,T., Lester, S.E., Miller. R.J., (2020): Roving divers surveying fish in fixed areas capture similar patterns in biogeography but different estimates of density when compared with belt transects. *Front. Mar. Sci.* 7:272. doi: 10.3389/fmars.2020.00272
- [8] **Hernán G.**, I. Castejón, J. Terrados and F. Tomas, (2019): Herbivory and resource availability shift plant defense and herbivore feeding choice in a seagrass system. *Oecologia*, 189, 719–732. <https://doi.org/10.1007/s00442-019-04364-6>. IF=3.1
- [7] Galbán-Malagón, C., **G. Hernán**, E. Abad, J. Dachs, (2017): Persistent Organic Pollutants in Krill from the Bellingshausen, South Scotia, and Weddell Seas. *STOTEN* 610-611, 1487-1495. <https://doi.org/10.1016/j.scitotenv.2017.08.108>. IF=4.9
- [6] **Hernán, G.**, M.J. Ortega, A.M. Gandara, I. Castejon, J. Terrados and F. Tomas, (2017): Future warmer seas: increased stress and susceptibility to grazing in seedlings of a marine habitat-forming species. *Glob. Chang. Biol.* 00:1-14. <https://doi.org/10.1111/gcb.13768>. IF=8.5

[5] **Hernán, G.**, L. Ramajo, L. Basso, A. Delgado, J. Terrados, C.M. Duarte and F. Tomas, (2016): Seagrass (*Posidonia oceanica*) seedlings in a high-CO₂ world: from physiology to herbivory. *Scientific Reports* 6, doi:10.1038/srep38017. IF=4.3

[4] Tomas, F., B. Martínez-Crego, **G. Hernán** and R. Santos, (2015): Responses of seagrass to anthropogenic and natural disturbances do not equally translate to its consumers. *Glob. Chang. Biol.*, 21(11), 4021-4030, doi:10.1111/gcb.13024. IF=8.4

[3] Morales, L., J. Dachs, B. González-Gaya, **G. Hernán**, M. Abalos and E. Abad, (2014): Background Concentrations of Polychlorinated Dibenzo-p-Dioxins, Dibenzofurans, and Biphenyls in the Global Oceanic Atmosphere. *Environ. Sci. Technol.*, 48 (17), 10198–10207, doi:10.1021/es5023619. IF=5.3

[2] Varela F.; Peluzzo A.; Berrio F., De La Rosa, L ; Ruano, A ; Meana, A ; Gomez, D ; García, R.M., ; Larreina, J.R. ; Diaz, E. ; Marcos, T. ; Hernan, Gema ; Sanchez de Ron, David ; Pascual, H., (2010): El Centro de Recursos Fitogenéticos - INIA: Variedades tradicionales de plantas cultivadas recolectadas en Andalucía (1929-2009) *Actas de Horticultura*. 55, pp.39-40.

[1] Cases M.A.; Navarrete P.; Perez D.; **Hernan G.**; Lopez P.; Sanchez D. Varela F. (2010): Recursos genéticos y caracterización química de plantas aromáticas y medicinales en las Islas Pitiusas *Actas de Horticultura*. 55, pp.29-30.

Book chapters

[1] Tomas, F ; Royo, L ; Mateo-Ramírez, A ; Máñez-Crespo, J ; Curbelo, L ; Amigo, M ; Antich, L ; Capó-Bauçà, S ; Castejón, I ; **Hernan, G** ; Íñiguez-Moreno, C ; Pereda-Briones, L ; Villasevil, M ; Procaccinii, G ; Terrados, J ; Tuya, F (2023): Praderas de cymodocea nodosa del PN Archipiélago de Cabrera: el papel de la diversidad genética en el funcionamiento del ecosistema y sus implicaciones para la conservación in *Proyectos de Investigación en Parques Nacionales*. Eds. Organismo Autónomo de Parques Nacionales, MITECO.

HONORS

RESEARCH GRANTS

Susan L. Williams fellowship on seagrass rehabilitation. Women Divers Hall of Fame

Postdoctoral fellowship 2021-2023. University of the Balearic Islands (*Competitive grant*)

Research grant for young researchers 2017. Obra Social La Caixa (*Competitive grant*)

Predocctoral fellowship FPI 2012-2016. Govern de les illes Balears (*Competitive grant*)

Becas Iberoamérica 2015. Banco Santander Foundation (*Competitive grant*)

Research grant 2015. University of the Balearic Islands (*Competitive grant*)

COST Training school support 2013. EU framework programme. (*Competitive grant*)

Short term scientific mission 2012. COST-EU framework programme (*Competitive grant*)

TRAVEL AWARDS

FSU Professional development travel award 2020. Florida State University.

ESA travel award 2019. Ecological Society of America.

FSU-OPDA NPA travel award 2019. Florida State University.

Training and travel grants 2016. British Ecological Society.

Advance course support 2015. The Royal Swedish Academy of Science.

SELECTED PRESENTATIONS

Hernán G., M.J. Ortega, J. Henderson, J. Alos, K. Boyer, S. Cimon, V. Combes, M. Cusson, A. Dennert, C. Hereu, M. Helsing-Lewis, K. Hovel, P. Jorgensen, S. Kiriakopolos, N. Kollars, M. O'Connor, J. Olsen, P.L. Reynolds, J. Ruesink, E. Voigt and F. Tomas. "Resource availability shapes latitudinal gradients of plant defense against herbivory in a marine foundation species". Ecological Society of America (Online, 2021)

Hernán G., Dubel, A., Rassweiler A. "Comparing the efficiency of biodiversity monitoring sampling programs". Ocean Science Meeting (San Diego, CA, US, 2020).

Hernán G., Dubel, A., Rassweiler A. "Comparing the efficiency of biodiversity monitoring programs". Ecological Society of America Annual Meeting (Louisville, KY, US, 2019).

Hernán G., Castejón, I., Terrados J, Tomas F. "Resistance and tolerance responses to herbivory under increased nutrient conditions and their effects on seagrass palatability". Ecological Society of America Annual Meeting (Portland, OR, US, 2017).

Hernan, G., Ramajo, L., Basso, L., Delgado, A., Terrados, J., Duarte, C.M., Tomas, F. "Seagrass (*Posidonia oceanica*) seedlings in a high CO₂ world: from physiology to herbivory". 12th International Seagrass Biology Workshop (Wales, UK., 2016).

Hernan, G., Tomas, F., Buia, M.C. and Terrados, J. "Ocean acidification enhances fish herbivory on seagrass". American Fisheries Society Meeting (Portland, U.S., 2015).

Hernán, G., Martínez, A., Terrados, J. and Tomas, F. "Effects of temperature in seagrass seedlings and their trophic relations". Aquatic Science Meeting, Association for the Sciences of Limnology and Oceanography (Granada, Spain, 2015).

Hernán, G., Varela, F., Navarrete, P., Pérez-Mao, D., López-Cepero, P., Marcos, M. F., Lorenzana, A., Campelo, P., Casquero, P. A., Calvo, R., Sánchez de Ron, D., Cases, A. "Chemical characterization of plant genetic resources of gentian (*Gentiana lutea* L.) in the counties of Lacia and Babia (Spain)" 28th International Horticultural Congress. ISHS Abstracts, Vol. I. (Lisboa, 2010).

PARTICIPATION IN RESEARCH PROJECTS

Funded by: Ministry of Science and innovation

Duration 2022-2025

Exploring strategies to facilitate and improve the success and resilience in seagrass restoration (SEAGRASSREST)

Funded by: Ministry of Science and innovation Duration 2021-2025
New approaches to assist and assess seaGRASS Ecosystem RECOVERY (GRASSREC).
PI: F. Tomas

Funded by: Govern de les Illes Balears Duration 2020-2023
Análisis de los cambios del estado de la posidonia y su fauna asociada en función de la
intensidad del fondeo (ESTPOS).
PI: F. Tomas

Funded by: Fundación BBVA Duration 2020-2022
Dynamic and accumulation of microplastics in seagrass meadows (MICROFAM).
PI: F. Tomas

Funded by: NASA
Demonstrating an Effective Marine Biodiversity Observation Network in the Santa Barbara
Channel
PI: R. Miller

Co-PIs: D. Siegel, C. Carlson, K. Lafferty, A. Rassweiler, D. Reed, P. Kyriakidis, D.
Iglesias-Rodriguez, B.S. Manjunath, M. Love, A. Thompson, J. Hildebrand, D. McCauley.

Funded by: National Academy of Science's Gulf Research Program Duration 2018-2020
Developing an integrated monitoring and assessment framework for evaluating ecosystem service
outcomes from seagrass restoration in the Gulf of Mexico
PI: S. Lester

Funded by: Spanish Ministry of Science and Innovation Duration 2015-2018
For a better comprehension of seagrass functioning and resilience to local perturbations: from
molecular to biogeographic scales.
P.I.: J. Terrados / F. Tomas (IMEDEA).

Funded by: European Union FP7 research infrastructure program ASSEMBLE
Independent and interactive effects of increased CO₂ and nutrients on seagrass – herbivore
interactions
P.I.: F. Tomas (IMEDEA).

Funded by: Spanish Ministry of Science and Innovation. Duration 2011-2013
Seagrass restoration through seedlings: effects of light, nutrients and herbivory.
P.I.: J. Terrados / F. Tomas (IMEDEA).

Funded by: Padi Foundation, US. Duration: 2012-2013
Seagrass-herbivore interactions in an acidified and eutrophic ocean.
P.I.: B. Martínez- Crego and F. Tomas.

Funded by: Spanish Ministry of Science and Innovation. Program CONSOLIDER INGENIO
2010.
Circumnavigation Expedition Malaspina 2010: Global Change and Biodiversity. Exploration of
the Global Ocean.
P.I.: Carlos M Duarte.

Funded by: Spanish Ministry of Science and Innovation. Duration: 2010-2012

Selection and breeding of spanish wild populations of *Lavandula latifolia* *Rosmarinus officinalis*, *Salvia lavandulifolia* y *Thymus mastichina* for its agronomic behaviour and richness in active principles,

Participants: INIA, SIA CLM, ITACyL, UVa, CTCF, IRTA.

P.I.: M.A. Cases.

Funded by: Junta de Castilla y León.

Duration: 2008-2012

Gentian studies in the occidental mountains of Leon for a comprehensive management.

Participants: Universidad de León, Universidad Politécnica de Madrid e INIA

P.I.: Pedro Casquero, Carlos Soriano y Federico Varela.

Funded by: Comunidad Autónoma de las Illes Balears

Duration: 2008-2009

Survey and cataloging of genetic resources of aromatic plants in Baleares, selection of mother plant for genera of commercial interest.

Participants: INIA y Destilerías Marí Mayans C.B.

P.I.: M.A. Cases.

INVITED SEMINARS

2020 **Invited Seminar.** Bodega Marine Laboratory-UC Davis.

Seagrass responses to environmental changes: the herbivory perspective.

2019 **Invited Seminar.** Florida State University.

Effects of environmental changes in seagrass herbivory.

2018 **Invited Seminar.** Oregon State University.

Resource availability shapes latitudinal patterns of plant defense traits in a marine foundation species.

TEACHING EXPERIENCE & MENTORING

2019 **Guest Lecturer.** Florida State University.

BSC3938 Careers in Biological Science.

2019 **Guest Lecturer.** Florida State University.

BSC3930 Seminar in Biological Frontiers.

2014 **Teaching Assistant.** University of the Balearic Islands.

Master in Marine Ecology. Fieldwork teaching assistant.

2014 **Summer Course Lecturer.** Universidad Internacional del mar.

Practical course on marine environmental management tools. Lectures and fieldwork.

2018-2022. **Mentor.** Jennifer McHenry. PhD candidate. FSU Dept. Geography.

“Geographic patterns of marine biodiversity and ecosystem services benefits in the Anthropocene”

2021-2022. **Mentor.** Esther Rodríguez. MSc Oceanography University of Barcelona.

“The role of coastal systems in the dynamic and accumulation of microplastics”

2021-2022. **Mentor.** Adrian Daza Sevillano. MSc Oceanography University of Barcelona.
“Effects of anchoring in faunal communities of *Posidonia oceanica* meadows ”

2019-2020. **Mentor.** Andrea Gros. MSc Oceanography University of Barcelona.
“Effects of Herbivory on marine plants: a review”

2014-2015 **Mentor.** Alberto Martínez. MSc Marine Ecology University of the Balearic Islands.
“Effect of temperature in the ecology of juvenile stages of *Posidonia oceanica*”

SKILLS

Transferable skills:

Project management, leadership, organization and time management, written and verbal communication, research and analytical skills, statistical skills, collaborative work, adaptability and problem-solving.

Software skills:

R, Matlab

Fieldwork skills:

Diving sampling and surveys (diving and boating certified).

On board sampling in scientific cruises: bottom sampling dredges, fishing and plankton nets, traps, CTD, radiometer, hydrophones...

Mesocosm set up and maintenance.

Lab/instrumentation skills:

Spectrophotometry (analysis of organic compounds).

Photosynthetic measurements

Sample preparation

Extraction, purification and quantification of compounds in HPLC, HRGC/HRMS.

Language:

Fluent in English, French and Catalan, native Spanish

SYNERGISTIC ACTIVITIES

Journal Reviewer: Nature Ecology and Evolution, Global Change Biology, Journal of Ecology, ICES Journal of Marine Science, Oikos, Marine Pollution Bulletin, Marine Environmental Research, Frontiers in Marine Science, Scientia Marina.

Service: Session co-organizer (ASLO 2023, International Seagrass Biology Workshop 14, 2022), FSU Postdoctoral Association (Vice-president 2019, President 2020), Postdoctoral welcome and Orientation (2019,2020), FSU Spring event Co-Chair (2019, 2020), FSU Fall event Co-Chair (2019), Jury of the Capitol Regional Science Fair (2019, 2020), FSU travel grants for postdocs (Reviewer July 2019).

Memberships: ASLO, USA National Postdoc Association, Women Divers Hall of Fame.

SCIENTIFIC OUTREACH

Skype a scientist. Skype with classrooms around the world (2018-current).

Science fairs for students and general public (IMEDEA-Spain, FSU-CML).

Women-in-science events with general public (Caixaforum-Spain, Oasis center for women and girls-Tallahassee).

Radio, press and television (interviews IB3, participation in documentary tve2).