



Oscar Serrano Gras

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General quality indicators of scientific research

This section describes briefly the main quality indicators of scientific production (periods of research activity, experience in supervising doctoral theses, total citations, articles in journals of the first quartile, H index...). It also includes other important aspects or peculiarities.

Although still a Mid-Career Researcher, I have already played a leadership role in 24 innovative science projects (as PI), collaborating with more than 150 international institutions and 200 co-authors to deliver cutting edge research outputs, translating science into policy thought commissioned projects and reports by relevant Industry and Governments, and organizing more than 20 sampling expeditions, and 10 workshops. During my relatively short career, I have already supervised 3 PhD and 9 MSc candidates, and 8 post-doctoral researchers in Australia and Spain towards successfully completing their projects, including the publication of their research as lead authors in top peer-reviewed journals. The impact of my research is shown by the steady increase in the number of publications in peer-reviewed journals and the number of citations over the past 8 years. As of January 2023, I have published 96 manuscripts in high impact journals, 13 book chapters and 15 open datasets in open-access; with cumulative 7250 citations according to Google Scholar (1680 citations in 2022) and h-index of 43. I have taken many opportunities to further develop my research performance through participation in grant proposals, communicating my research in popular and scientific papers, inviting researchers to Australia, visiting key researchers at other institutions, presenting at international conferences, and giving invited presentations. Over the last decade I have become recognized as one of the leaders in Blue Carbon research (i.e., carbon dioxide storage by coastal vegetated ecosystems) worldwide, and becoming increasingly recognized as a leader in paleoenvironmental research in coastal settings. I am passionate about extending my research outcomes and promoting the results, evidenced by my co-founding of the company BIOSFERA in 2006, with more than 60 media interviews and reports, and a regular on-line presence through ABC Australia, Channel 9 Australia, Science Mag, newspapers and other channels.

Oscar Serrano Gras

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Current professional situation

Employing entity: Centro de Estudios Avanzados de Blanes **Type of entity:** State agency

Professional category: Ramon y Cajal Senior researcher

Start date: 03/05/2021

Type of contract: Temporary employment contract **Dedication regime:** Full time

Primary (UNESCO code): 251101 - Soil biochemistry

Secondary (UNESCO code): 250600 - Geology

Tertiary (UNESCO code): 241700 - Plant Biology (Botany)

Performed tasks: Postdoctoral researchers Supervision of undergraduate, Master and PhD students and postdoctoral researchers Establishment of a team including technicians, students and postdoctoral researchers Establishment of a network of national and international collaborators Granting research projects

Identify key words: Chemistry; Earth sciences; Plants and animal biology and ecology

Previous positions and activities

	Employing entity	Professional category	Start date
1	Edith Cowan University	Senior Researcher	01/01/2017
2	Edith Cowan University	Postdoctoral researcher	01/02/2012
3	Centro de Estudios Avanzados de Blanes	PhD candidate	01/01/2006
4	Universidad Santiago de Compostela	Reearchers	01/06/2011

1 **Employing entity:** Edith Cowan University **Type of entity:** University Research Institute

Department: Centre for Marine Ecosystems Research

City employing entity: Perth, Australia

Professional category: Senior Researcher

Educational Management (Yes/No): No

Start-End date: 01/01/2017 - 31/12/2019

Duration: 3 years

Type of contract: Independant researcher DECRA Australian Research Council

Performed tasks: Develop a 3 year research project looking at reconstructing ecological trends in coastal ecosystems to inform management and conservation actions Supervision of undergraduate, Master and PhD students and postdoctoral researchers.



- 2** **Employing entity:** Edith Cowan University **Type of entity:** University Research Institute
Department: Centre for Marine ecosystems Research
City employing entity: Perth, Australia
Professional category: Postdoctoral researcher **Educational Management (Yes/No):** No
Start-End date: 01/02/2012 - 31/12/2016 **Duration:** 4 years - 11 months
Type of contract: Grant-assisted student (pre or post-doctoral, others)
Performed tasks: Coordinator of the CSIRO Coastal Carbon Cluster project, involving 11 institutions across Australia
- 3** **Employing entity:** Centro de Estudios Avanzados de Blanes **Type of entity:** State agency
Professional category: PhD candidate
Start-End date: 01/01/2006 - 11/09/2011 **Duration:** 4 years - 7 months - 10 days
- 4** **Employing entity:** Universidad Santiago de Compostela
Professional category: Researchers
Start-End date: 01/06/2011 - 01/09/2011 **Duration:** 3 months



Education

University education

1st and 2nd cycle studies and pre-Bologna degrees

- 1 University degree:** Masters
Name of qualification: Diploma de Estudios Avanzados
Degree awarding entity: University de Barcelona **Type of entity:** University
Date of qualification: 01/07/2007
- 2 University degree:** Higher degree
Name of qualification: Licenciado en Biología Rama Organismos y Sistemas
Degree awarding entity: Universitat de Barcelona **Type of entity:** University
Date of qualification: 01/09/2005

Doctorates

Doctorate programme: Doctor en Biología
Degree awarding entity: Universitat de Barcelona **Type of entity:** University
Date of degree: 28/06/2011

Teaching experience

Experience supervising doctoral thesis and/or final year projects

- 1 Project title:** Carbon storage in seagrass ecosystems
Type of project: End of course project
Entity: Edith Cowan University **Type of entity:** University
City of entity: Perth, Australia
Student: Dani Keenword
Obtained qualification: 8/10
Identify key words: Natural sciences and health sciences
Date of reading: 15/10/2015
- 2 Project title:** Paleoreconstruction of environmental change using seagrass archives
Type of project: End of course project
Entity: Edith Cowan University **Type of entity:** University
City of entity: Perth, Australia
Student: James Bongiovanni
Obtained qualification: 8/10
Identify key words: Natural sciences and health sciences
Date of reading: 15/10/2015



- 3** **Project title:** Carbon sequestration in seagrass meadows
Type of project: Doctoral thesis
Entity: Edith Cowan University **Type of entity:** University
City of entity: Perth, Australia
Student: Rozaimi Mohammad Jamaludin
Obtained qualification: Cum laude
Identify key words: Natural sciences and health sciences
Date of reading: 10/09/2015
European doctorate: No
Quality recognition: Yes **Date of award:** 10/09/2015
- 4** **Project title:** Impact of mooring activities on the carbon sequestration of seagrass meadows
Type of project: Master thesis
Entity: University of Western Australia **Type of entity:** University
City of entity: Perth, Australia
Student: Radiyah Ruhon
Obtained qualification: 9/10
Identify key words: Natural sciences and health sciences
Date of reading: 05/02/2015
European doctorate: No
Quality recognition: Yes **Date of award:** 05/02/2015
- 5** **Project title:** Paleoreconstruction of metal pollution using seagrass archives
Type of project: End of course project
Entity: Edith Cowan University **Type of entity:** University
City of entity: Perth, Australia
Student: Grace Davis
Obtained qualification: 9/10
Identify key words: Natural sciences and health sciences
Date of reading: 05/10/2013



Scientific and technological experience

Scientific or technological activities

R&D projects funded through competitive calls of public or private entities

- 1** **Name of the project:** Millenary Changes in the Mediterranean
Entity where project took place: Centro de Estudios Avanzados de Blanes
Type of entity: State agency
City of entity: Blanes, Catalonia, Spain
Name principal investigator (PI, Co-PI....): Oscar Serrano Gras
Nº of researchers: 2
Funding entity or bodies:
Spanish National Plan for Scientific and Technical Research and Innovation
Type of entity: State agency
Start-End date: 01/09/2021 - 30/08/2024
Total amount: 165.000 €
- 2** **Name of the project:** Andalusian blue carbon for climate change mitigation: quantification and valorization mechanisms (LIFE BLUE NATURA)
Identify key words: Natural sciences and health sciences
Identify key words: Natural sciences and health sciences
Type of project: Research and development, including transfer
Geographical area: National
Degree of contribution: Researcher
Entity where project took place: Centro de Estudios Avanzados de Blanes
Type of entity: State agency
City of entity: Blanes, Catalonia, Spain
Nº of researchers: 10
Nª people/year: 10
Type of participation: Team member
Name of the programme: European Union, LIFE Climate Change Mitigation Project
Start-End date: 2016 - 2020
Duration: 5 years
Total amount: 3.710.000 €
Dedication regime: Part time
- 3** **Name of the project:** The sedimentary record under seagrasses as a tool for the evaluation, valorization, diagnosis, and prognosis in the Spanish Insular National Parks (PALEOPARK).
Identify key words: Natural sciences and health sciences
Identify key words: Natural sciences and health sciences
Type of project: Research and development, including transfer
Geographical area: National
Degree of contribution: Researcher
Entity where project took place: Centro de Estudios Avanzados de Blanes
Type of entity: State agency
City of entity: Blanes, Catalonia, Spain
Nº of researchers: 23
Nª people/year: 12
Type of participation: Team member



Name of the programme: National Parks

Start-End date: 2015 - 2018

Duration: 4 years

Total amount: 162.000 €

Dedication regime: Part time

4 Name of the project: Advances in sampling techniques, biogeochemical characterization, and quantification of seagrass millenary deposits,

Identify key words: Natural sciences and health sciences

Identify key words: Natural sciences and health sciences

Type of project: Research and development, including transfer

Geographical area: National

Degree of contribution: Researcher

Entity where project took place: Centro de Estudios Avanzados de Blanes

Type of entity: State agency

City of entity: Blanes, Catalonia, Spain

Nº of researchers: 12

Nª people/year: 12

Type of participation: Team member

Name of the programme: National Funding Scheme

Start-End date: 2014 - 2016

Duration: 3 years

Total amount: 284.000 €

Dedication regime: Part time

5 Name of the project: Invasive species in Catalan aquatic ecosystems: environmental education to prevent their dispersion

Identify key words: Natural sciences and health sciences

Type of project: Demonstration, pilot projects, conceptual formulations and design of processes and services

Geographical area: National

Degree of contribution: Researcher

Entity where project took place: Biosfera, associacio educacio ambiental

Type of entity: Associations and Groups

City of entity: Barcelona, Catalonia, Spain

Nº of researchers: 4

Nª people/year: 4

Type of participation: Team member

Name of the programme: Catalan Government

Start-End date: 2015 - 2015

Duration: 1 year

Total amount: 35.000 €

6 Name of the project: Management of invasive plant species in the Cap Creus Natural Park

Identify key words: Natural sciences and health sciences

Type of project: Research and development, including transfer

Geographical area: National

Degree of contribution: Researcher

Entity where project took place: Biosfera, associacio educacio ambiental

Type of entity: Associations and Groups

City of entity: Barcelona, Catalonia, Spain

Nº of researchers: 4

Nª people/year: 4

Type of participation: Team member

Name of the programme: Natural Environment and Biodiversity, Catalan Government

Start-End date: 2015 - 2015

Duration: 1 year

Total amount: 14.000 €



- 7** **Name of the project:** The carbon storage potential of seagrass meadows in the Red Sea,
Identify key words: Natural sciences and health sciences
Identify key words: Natural sciences and health sciences
Type of project: Basic research (including archaeological digs, etc) **Geographical area:** Non EU International
Degree of contribution: Coordinator of total project, network or consortium
Entity where project took place: KAUST Saudi Arabia **Type of entity:** Technological Centre
City of entity: Jeddah, Saudi Arabia
Nº of researchers: 3 **Nª people/year:** 3
Funding entity or bodies: Edith Cowan University **Type of entity:** University
City funding entity: Perth, Australia
Type of participation: Principal investigator
Name of the programme: Capability Enhancing Scheme
Start-End date: 2015 - 2015 **Duration:** 1 year
Total amount: 4.000 €
Dedication regime: Part time
- 8** **Name of the project:** Assessing the capacity of seagrass sediments to sequester carbon dioxide and metal pollution: past, present and future scenarios
Identify key words: Natural sciences and health sciences
Identify key words: Natural sciences and health sciences
Type of project: Research and development, including transfer **Geographical area:** Australia
Degree of contribution: Researcher
Entity where project took place: Edith Cowan University **Type of entity:** University
City of entity: Perth, Australia
Nº of researchers: 4 **Nª people/year:** 4
Funding entity or bodies: Edith Cowan University **Type of entity:** University
City funding entity: Perth, Australia
Type of participation: Team member
Name of the programme: Industry Scheme
Start-End date: 2014 - 2015 **Duration:** 2 years
Total amount: 138.000 €
Dedication regime: Part time
- 9** **Name of the project:** Determining past, present and future ecosystem dynamics and biogeochemical cycles in Australian estuaries
Identify key words: Natural sciences and health sciences
Identify key words: Natural sciences and health sciences
Type of project: Basic research (including archaeological digs, etc) **Geographical area:** Australia
Degree of contribution: Coordinator of total project, network or consortium
Entity where project took place: Edith Cowan University **Type of entity:** University
City of entity: Perth, Australia
Nº of researchers: 3 **Nª people/year:** 3
Funding entity or bodies:



Edith Cowan University
City funding entity: Perth, Australia

Type of entity: University

Type of participation: Principal investigator
Name of the programme: Early Career Research Grant Scheme
Start-End date: 2014 - 2015 **Duration:** 2 years
Total amount: 15.000 €
Dedication regime: Part time

10 Name of the project: Reconstruct the past of the Wasse-Wonnerup systems, Department of Water (DoW)

Identify key words: Natural sciences and health sciences

Identify key words: Natural sciences and health sciences

Type of project: Research and development, including transfer **Geographical area:** Australia

Degree of contribution: Coordinator of total project, network or consortium

Entity where project took place: University Western Australia

City of entity: Perth, Australia

Nº of researchers: 2

Nª people/year: 2

Funding entity or bodies:

Department of Water western Australia

Type of entity: Public Research Body

City funding entity: Perth, Australia

Type of participation: Principal investigator

Start-End date: 2014 - 2015

Duration: 2 years

Total amount: 25.000 €

Dedication regime: Part time

11 Name of the project: Seagrass meadows as carbon sinks: loss of carbon after disturbance and their economic significance

Identify key words: Natural sciences and health sciences

Identify key words: Natural sciences and health sciences

Type of project: Research and development, including transfer **Geographical area:** Australia

Degree of contribution: Coordinator of total project, network or consortium

Entity where project took place: Edith Cowan University

Type of entity: University

City of entity: Perth, Australia

Nº of researchers: 4

Nª people/year: 4

Funding entity or bodies:

Edith Cowan University

Type of entity: University

City funding entity: Perth, Australia

Type of participation: Principal investigator

Name of the programme: Faculty Research Grant Scheme

Start-End date: 2014 - 2015

Duration: 2 years

Total amount: 10.000 €

Dedication regime: Part time

12 Name of the project: Do seagrass meadows provide pH refugia for calcifying organisms?

Identify key words: Natural sciences and health sciences

Identify key words: Natural sciences and health sciences

Type of project: Basic research (including archaeological digs, etc) **Geographical area:** Australia



Degree of contribution: Researcher
Entity where project took place: University Western Australia
City of entity: Perth, Australia
Nº of researchers: 3 **Nª people/year:** 4
Funding entity or bodies:
University Western Australia
Type of participation: Team member
Name of the programme: Early Career Researcher Scheme
Start-End date: 2014 - 2014 **Duration:** 1 year
Total amount: 16.000 €
Dedication regime: Part time

13 Name of the project: Organic carbon preservation in estuarine seagrass meadows of western Australia
Identify key words: Natural sciences and health sciences
Identify key words: Natural sciences and health sciences
Type of project: Basic research (including archaeological digs, etc) **Geographical area:** Australia
Degree of contribution: Researcher
Entity where project took place: Edith Cowan University
City of entity: Perth, Australia
Nº of researchers: 3 **Nª people/year:** 3
Funding entity or bodies:
Hodgkin Trust **Type of entity:** Associations and Groups
City funding entity: Perth, Australia
Type of participation: Team member
Name of the programme: Science Without Borders Brazil-Australia
Start-End date: 2014 - 2014 **Duration:** 1 year
Total amount: 5.000 €
Dedication regime: Part time

14 Name of the project: Role of seagrass as carbon sinks and paleoenvironmental pH records
Identify key words: Natural sciences and health sciences
Identify key words: Natural sciences and health sciences
Type of project: Basic research (including archaeological digs, etc) **Geographical area:** Australia
Degree of contribution: Researcher
Entity where project took place: University Western Australia **Type of entity:** University
City of entity: Perth, Australia
Nº of researchers: 3 **Nª people/year:** 3
Funding entity or bodies:
University Western Australia **Type of entity:** University
City funding entity: Perth, Australia
Type of participation: Team member
Name of the programme: Science Without Borders Brazil-Australia
Start-End date: 2014 - 2014 **Duration:** 1 year
Total amount: 10.000 €
Dedication regime: Part time



- 15 Name of the project:** Studying the salt marsh ponds at Useless Loop
Identify key words: Natural sciences and health sciences
Identify key words: Natural sciences and health sciences
Type of project: Research and development, including transfer
Geographical area: Australia
Degree of contribution: Coordinator of total project, network or consortium
Entity where project took place: Edith Cowan University
Type of entity: University
City of entity: Perth, Australia
Nº of researchers: 2
Nª people/year: 2
Funding entity or bodies: Shark Bay Resources Pty Ltd
Type of entity: Business
City funding entity: Perth, Australia
Type of participation: Principal investigator
Start-End date: 2014 - 2014
Duration: 2 years
Total amount: 14.000 €
Dedication regime: Part time

Scientific and technological activities

Scientific production

Publications, scientific and technical documents

- 1** Martin Dahl; Kathryn McMahon; Paul Lavery; Sarah Hamilton; Catherine Lovelock; Oscar Serrano. Ranking the risk of CO2 emissions from seagrass soil carbon stocks under global change threats. Global Environmental Change. 78 - 102632, 2023.
Type of production: Scientific paper
Format: Journal
Corresponding author: Yes
- 2** Dongyan Liu; Chen Zhou; John Keesing; Oscar Serrano; Axel Werner; Yan Fang; Yang Cheng. Wildfires enhance phytoplankton production in tropical oceans. Nature Communications. 13 - 1348, 2022.
Type of production: Scientific paper
Format: Journal
Corresponding author: No
- 3** Oscar Serrano et al. Australian vegetated coastal ecosystems as global hotspots for climate change mitigation. Nature Communications. 10 - 4313, 2019.
Type of production: Scientific paper
Format: Journal
Corresponding author: Yes
- 4** O Serrano; PS Lavery; CM Duarte; GA Kendrick; A Calafat; P York; A Steven; P Macreadie. Can mud (silt and clay) be used to predict soil organic carbon content within seagrass ecosystems?. Biogeoscience Discussions. doi:10.5194/bg-2015-598, 2016.
Type of production: Scientific paper
Format: Journal
Position of signature: 1
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Corresponding author: Yes
Total no. authors: 8



- 5** M Rozaimi; PS Lavery; O Serrano; D Kyrwood. Long-term carbon storage and its recent loss in an estuarine *Posidonia australis* meadow (Albany, Western Australia). *Estuarine, Coastal and Shelf Science*. doi:10.1016/j.ecss.2016.01.001, 2016.
Type of production: Scientific paper
Position of signature: 3
Total no. authors: 4
Format: Journal
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Corresponding author: No
- 6** O Serrano; G Davis; PS Lavery; CM Duarte; A Martinez-Cortizas; MA Mateo; P Masque; A Arias-Ortiz; M Rozaimi; Ga Kendrick. Reconstruction of centennial-scale fluxes of chemical elements in the Australian coastal environment using seagrass archives. *Science of the Total Environment*. 541, pp. 883 - 894. 2016.
Type of production: Scientific paper
Position of signature: 1
Total no. authors: 10
Format: Journal
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Corresponding author: Yes
- 7** O Serrano; PS Lavery; P Masque; K Inostroza; J Bongiovanni; CM Duarte. Seagrass sediments reveal the long? term deterioration of an estuarine ecosystem. *Global Change Biology*. doi: 10.1111/gcb.13195, 2016.
Type of production: Scientific paper
Position of signature: 1
Total no. authors: 6
Format: Journal
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Corresponding author: Yes
- 8** L Lopez-Merino; O Serrano; F Adame; MA Mateo; A Martinez-Cortizas. Glomalin accumulated in seagrass sediments reveals past alterations in soil quality due to land-use change. *Global and Planetary Change*. 133, pp. 87 - 95. 2015.
Type of production: Scientific paper
Corresponding author: No
Format: Journal
- 9** O Serrano; AM Ricart; PS Lavery; MA Mateo; A Arias-Ortiz; P Masque; A Steven; CM Duarte. Key biogeochemical factors affecting soil carbon storage in *Posidonia* meadows. *Biogeoscience Discussions*. doi:10.5194/bgd-12-18913-2015, 2015.
Type of production: Scientific paper
Position of signature: 1
Total no. authors: 8
Format: Journal
Degree of contribution: Author or co-author of article in journal with external admissions assessment committee
Corresponding author: Yes
- 10** I Mazarrasa; N Marba; CE Lovelock; O Serrano; P Lavery; J Fourqurean; H Kennedy; MA Mateo; D Krause-Jensen; A Steven; CM Duarte. Seagrass meadows as a globally significant carbonate reservoir. *Biogeosciences*. 12, pp. 1 - 32. 2015.
Type of production: Scientific paper
Corresponding author: No
Format: Journal



R&D management and participation in scientific committees

Organization of R&D activities

- 1 Title of the activity:** Workshop
Type of activity: Workshops
Convening entity: Edith Cowan University
City convening entity: Perth
Start-End date: 2012 - 2016

Geographical area: Australia
Type of entity: University

Duration: 1 month
- 2 Title of the activity:** Symposia
Type of activity: Lead Symposia
Convening entity: ASLO
City convening entity: Granada, Spain
Start-End date: 2015 - 2015

Geographical area: International
Type of entity: Associations and Groups

Duration: 1 day