



The International Chair in Marine Ecosystem Services

The first 21 months

Last update: 27/06/2016

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Executive summary

Healthy ocean and coastal ecosystems benefit people, but the management of these ecosystems is made difficult by a persistent failure to embrace new scientific approaches, data and technologies. The research team of the International Chair in Marine Ecosystem Services (IC-MES) seeks to use new ways of harnessing 21st century technologies and interdisciplinary approaches to re-imagine how we use data and science to manage the marine ecosystems that people depend upon. We use Smart data (and are working on Big data) approaches and even artwork **to improve the use of science in the management of marine ecosystems**, especially with a focus on how we manage for the benefit of people.

We use Smart data approaches to cut through the clutter of too much data in order to find indicators and essential variables to better target science and policy. In a **global coral reef project**, we integrate selected interdisciplinary indicators to identify where we need new science to prepare coral reefs for the effects of future climate change and ocean acidification. In our **Blue Forests project**, we work with natural scientists, protected area managers, NGOs, and government agencies to match the best emerging carbon and ecosystem services science with the needs of new initiatives that are trying to improve coastal conservation of carbon rich coastal ecosystems.

In our largest and most rapidly developing project, we are working to develop new, integrated approaches and relationships to fundamentally change the way we manage whales, dolphins and porpoises in the Mediterranean, by **creating a spatial forecasting tool to predict the probability of encountering whales**. The tool will use “big data methods” and probabilistic modeling to integrate existing, yet disparate data on the human and ecological dimensions of cetacean conservation. This integration will include cetacean data collected using traditional methods (overflights, research cruises), as well as new data from high resolution satellite images, and through web-scraping images from online sources and social media. It will also include social data, collected through participatory mapping approaches and other social science data methods. Such a tool will help us to better: a) *target* conservation needs that change seasonally and climatically, b) *direct* sustainable tourism and tourism regulation to areas where cetaceans are most likely to be encountered, and c) *reduce* ship strikes by providing forecast data that could be used to advise ships to change speed or course to avoid collisions with whales. To create this tool, we have partnered with dozens of collaborators from across Europe and the world (including UNESCO’s IOC, Tethys Institute, and the British Antarctic Survey) and are working with whale watching companies, protected areas



managers, biologists, ecological modelers, remote sensing and big data experts, as well as ecological and probabilistic modelers.

In the first 21 months, the IC-MES team has grown to **a core of 8 people, with expertise in economics, ecology, social science and policy**, who have published 14 peer-reviewed articles while in residence, 5 book chapters, and 6 working papers. We've raised nearly €1 million in external funds, plus we have competed successfully (and collaboratively) for Labex funds that are outside of the Chair. Additionally, we have led the submission of nearly €3 million in other external funding proposals including an Interreg proposal for €1.7 million and participated in another Interreg Atlantic proposal as a partner.

We also have worked with other researchers at the IUEM and Labex to recruit and apply for UBO funding to support the visiting professorships of 2 world-renowned researchers: deep sea scientist Dr. Cindy van Dover (joint with Mohamed Jebbar, Pierre-Marie Sarradin, and Jozée Sarrazin) and Dr. Steve Crooks (an IPCC committee member and carbon scientist, sponsored jointly by the IC-MES and LEMAR).

The IC-MES team has rapidly become a world leader in the Marine Ecosystem Services Community of Practice. In the last 21 months, we have hosted 32 webinars, 2 podcasts, and a number of blogs on emerging topics in marine ecosystem services. Dr. Pendleton has given two keynote speeches and the team has organized numerous sessions at international conferences. The IC-MES team has also been active in educating future generations, teaching in Masters courses at Rennes Agrocampus, leading the SIAME course on writing for English language journals, and teaching in international courses on marine ecosystem services methods.

The IC-MES team has been a catalytic factor at the LabexMER and will continue to grow its network of partners locally and internationally as we work to attract world class researchers, businesses, and collaborators to join our efforts to revolutionize the way we create new science and knowledge systems to manage marine and coastal ecosystems.

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The International Chair in Marine Ecosystem Services (IC-MES)

The International Chair in Marine Ecosystem Services (IC-MES) was created by the LabexMER in 2014 and is currently hosted by Amure lab. Its objectives are twofold: (a) developing high-level interdisciplinary research on the human uses of the sea and coast and (b) increasing the international attractiveness and connections of IUEM and LabexMER on these research questions. The IC-MES was granted seed funding of €450,000 from the LabexMER for a three-year period 2014-2017. This report acts as a mid-term update on the IC-MES activities. It more specifically highlights the International Chair achievements and sketch plans for the future.

Box 1. What's the LabexMER?



LabexMER is a cluster of Excellence funded by the French “Investment for the future” program launched in 2011. LabexMER is a consortium that combines the best research teams and laboratories in marine sciences in western France, and has the great ambition to propel them as one of the international leaders in this field. LabexMER is coordinated by the European Institute of Marine Studies (IUEM), and includes 7 research units. LabexMER is organized in 5 programs:

- Development of eight research axes, to answer fundamental scientific questions. The IC-MES belongs to Axis , which deals with Marine Social-Ecological System Management;
- The international chairs program, from where the International Chair in Marine Ecosystem Services (IC-MES) comes from;
- The international post-doctoral fellowship program, to attract the brightest young scientists who wish to develop their own research project in relation with the LabexMER axes;
- The educational/training program, to promote innovative training, and strengthen the international visibility of marine sciences education in Brest;
- Support for research at sea: an internal call is issued each year to fund small projects providing a strong added value to sea cruises.

Source: LabexMer 2012-2014 report

At IC-MES, we believe that two interrelated ingredients are key for excellence and international attractiveness: people and research challenges. We devote the two first sections of this report to a discussion of our team and networks of collaborators. The third section presents selected IC-MES achievements; we offer these as an illustration of our progress to date. Finally, a more detailed presentation of each research project is available in appendices.

1. Who are we? The IC-MES Team

People are the core of solid, innovative research. **The IC-MES team seeks to attract the best international researchers to come work with us at the LabexMER.** The IC-MES has been working at a variety of scales to build its network of research collaborators. We first built a **core team** made of interdisciplinary researchers, each with different areas of expertise, all of whom are eager and capable of working across disciplines. At the same time, we developed a network of **core partners** to help fulfill key competences necessary for our research, but are currently missing at the LabexMer. Third, we work tirelessly to expand and strengthening **our global network of collaborators.** This multi-pronged approach allows us to tackle a wide variety of research and conservation challenges, either internally within the IC-MES or by mobilizing potential collaborators from our networks.

The core research team

Dr. Linwood Pendleton gathered a research team that is **diverse and interdisciplinary.** The team embodies a variety disciplines, cultural backgrounds, nationalities, and work experiences. All team members share the same deep interest for interdisciplinary research as a means to solve the global challenges our society faces.

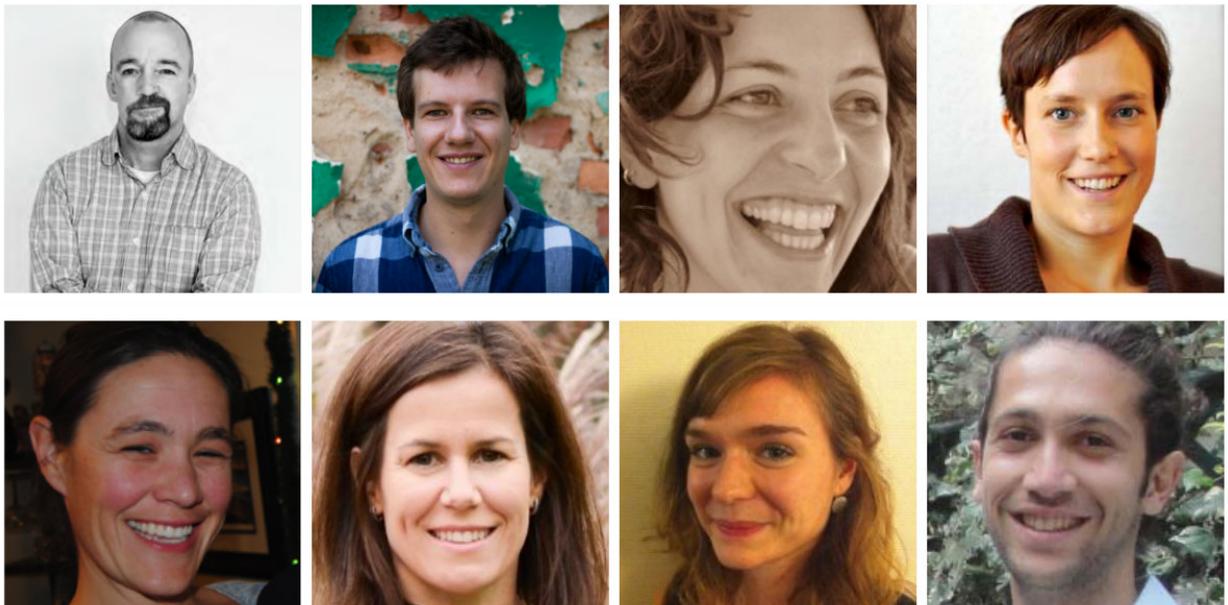


Figure 1. IC-MES Core team

Linwood Pendleton (U.S.A.)

Dr. Linwood Pendleton is an environmental economist and holds the International Chair of Excellence (IC-MES) at the European Institute for Marine Studies. He also is a Senior Scholar at Duke's Nicholas Institute for Environmental Policy Solutions (NIEPS), and the director of the Marine Ecosystem Services Partnership (MESP) and served as the founding co-chair of the Marine Biome Working Group of the international Ecosystem Services Partnership.

Linwood was the Acting Chief Economist for the National Oceanic and Atmospheric Administration (NOAA) from 2011-2013, and is an Adjunct Associate Professor at the Duke University Marine Laboratory. He holds masters degrees in Public Administration from Harvard University and Ecology from Princeton University, and a doctoral degree in Forestry and Environmental Studies from Yale University.

Adrien Comte, PhD student (France)

Adrien is interested in topics at the interface of science and policy. With an interdisciplinary approach, his research focuses on **global environmental change and its impacts on socio-ecological systems**. He is currently working on one of the most vulnerable marine ecosystems, coral reefs, where solution-oriented research can help understand the impacts of CO₂-threats on the populations dependent on these ecosystems and how to adapt to change.

Evangelia Drakou, PhD (Greece)

Dr. Evangelia Drakou is an interdisciplinary researcher with a doctorate in Landscape Ecology and protected area management. Her expertise is on **mapping and the assessment, modelling and visualization of information on marine and coastal ecosystem services**. Within the International Chair team, Evangelia coordinates the research activities of the Horizon 2020 project ECO-POTENTIAL on the use of earth observation data to assess and monitor the status of protected areas in Europe. She also leads the development of the Ecosystem Services Partnership Visualization Tool (esp-mapping.net).

She was previously a post-doctoral researcher at the JRC-EC on the BIOPAMA project to assess and map ecosystem services provided by protected areas in the Africa, Caribbean and South Pacific (ACP) regions. Before that she worked as a post-doctoral researcher at the FP7 Research Project SCALES. She is actively involved in the Marine Ecosystem Service Partnership, was newly elected as the co-chair of the Ecosystem Services Partnership's Marine Biome working groups, and is an active member of several working groups of the Ecosystem Services Partnership and the GEOBON working group on Ecosystem Services.

Dorothee Herr (Luxemburg)

Dorothee Herr has been working for the IUCN's Global Marine Program as a Marine Program Officer since 2009. Dorothee is **particularly interested in policy processes on ocean and climate change**. In her capacity at IUCN Dorothee is following in particular the current UNFCCC negotiations and working towards including marine and coastal issues more centrally into the international climate change policy debate. She is active in a wide range of marine related climate change topics and initiatives, including on ocean warming and ocean acidification as well as on nature-based solutions to climate change adaptation and mitigation.

As part of her research in the GEF Blue Forests project, Dorothee is currently pursuing a PhD under Linwood Pendleton's supervision. She has a masters degree in Environmental Change and Management from Oxford University. Fluent in four languages Dorothee has extensive experience within the private sector, government agencies and NGOs having worked amongst others at the Luxembourg Ministry of the Environment, Greenpeace and the International Network for Studies in Technology, Environment, Alternatives, Development (CEPS/INSTEAD).

Amber Himes-Cornell, PhD (U.S.A.)

Dr. Amber Himes-Cornell is a **social science researcher** in the Laboratory of Excellence at the European Institute for Marine Studies (IUEM). Her research focus is on coastal community vulnerability and resilience, the socio-economic aspects of marine ecosystem services, valuation of ecosystem services associated with blue carbon habitats (focusing on mangroves, seagrasses and saltmarshes), and assessing ecosystem services in marine protected areas.

Amber's primary focus is on two major research projects: the Global Environment Facility's Blue Forests Project, which focuses on defining and valuing ecosystem services in blue carbon habitats, and a European Union funded Horizon 2020 project called ECO-POTENTIAL, which focuses on mapping coastal ecosystem services with remote sensing technology.

Prior to coming to IUEM, Amber was a social scientist at NOAA's Alaska Fisheries Science Center where she focused on analyzing the importance of commercial, recreational and subsistence fishing to Alaskan communities.

Anne Kaup, J.D. (U.S.A.)

As **executive manager of the Marine Ecosystem Services Partnership (MESP)**, Anne works with director Linwood Pendleton to foster a community of scientists, stakeholders and policy-makers, making available to them information regarding the latest trends and issues related to marine ecosystem services. She researches, edits, and produces Pendleton's blogs, podcasts, website material, webinars and newsletters. Anne also manages the MESP database containing over 1,000 ecosystem service valuation studies. She is an attorney and

has a law degree from Cornell University (1998) and a B.A. in Economics from Yale University where she completed a 2nd major in Studies in the Environment (1995).

Perrine Laroche (France)

Perrine is an MSc student in Applied Economics to Agriculture, Sea and Environment (Agrocampus Ouest - University of West Brittany, France) with an academic background in Geography and Spatial planning (University of Lyon 3, France). She joined the team in March 2016 for her Master's thesis based on a review and analysis of the concept of "Essential Variables", developed by the United Nations, and its application for the assessment and monitoring of Ecosystem Services. She is currently investigating **the use of science and remote sensing techniques to deliver relevant knowledge** to help policy makers prioritize conservation actions in order to achieve Global Targets (e.g. CBDs, Aichi Targets, etc.). During this training she is developing skills in systematic literature review methods, statistical analysis and mapping.

Antoine Rivière (France)

Antoine has a strong interest in the Science-Policy interface of global environmental changes, with a particular focus on climate change. This is why he joined the team at the beginning of 2016 as a **Program Manager**. Within the International Chair team, he is more specifically involved in the Blue Carbon Science of the GEF Blue Forests project.

Before that, Antoine worked for the French Ministry of the Environment as a foresight officer and in a startup company on Carbon markets. Antoine academic background is quite interdisciplinary since he graduated with a double Master's in Environmental Sciences and Environmental Policies (Sciences Po Paris & UPMC, France). He also holds a Master's in Ecological Economics (AgroParisTech, France).

Building an IC-MES Community

Beyond our core team, we work with many partners at various levels to continuously grow and strengthen the IC-MES international network.

Pursuing the objective of carrying interdisciplinary science, the IC-MES strives for enhanced cooperation with many LabexMer labs and researchers, such as the Marine Environmental Sciences lab (e.g. Luis Tito de Morais or François Le Loc'h at LEMAR), the Microbiology lab (e.g. Mohammed Jebbar at LM2E) or the Deep Sea Lab (e.g. Jozée Sarrazin and Pierre-Marie Sarradin at LEP). It also developed links with the Library La Pérouse (e.g. Fanny Barbier and Morgane Le Gall) to find new ways of catalyzing growth of the IC-MES community (see Box 2). Finally, the International Chair is constantly looking for opportunities either to promote synergies with existing partners. In practice, we have already developed a number of joint initiatives and proposals:

- The **Blue Carbon Think Tank** is an effort to create a multinational research team on blue carbon research and policy challenges, especially for francophone countries. The Think Tank team will combine the best of French and International Expertise to provide a holistic approach to understanding the science and management of blue carbon ecosystems, with a focus on francophone countries.
- A proposed **Sustainability Center**, joint with Doriane Ibarra, Fanny Barbier, Morgane Le Gall (Library La Pérouse), Olivier Ragueneau (LEMAR), Camille Maze (CNRS, Apolimer), and Denis Bailly (the proposed United Nations University). The Sustainability Center is proposed as a new paradigm in interdisciplinary research for France, with shared workspaces open to all disciplines and researchers focused on marine conservation and management.
- A **high-level seminar series** on spatial planning on the deep sea in international waters will take place in Fall 2016. The course will be led by Dr. Cindy Van Dover from Duke University and will be open to the public.
- Two visiting professors will be hosted by LabexMer labs in Fall 2016 and Spring 2017:
 - **Dr. Steve Crooks (U.K.)**, hosted by IC-MES and Amure, is a wetland scientist and geomorphologist. He has 20 years experience in coastal wetland response to human impacts and climate change. He specializes in translating science to formats accessible to policy makers and managers. Steve's venue will reinforce bridges with other labs like LEMAR. (Developed in consultation with Luis Tito de Morais and François Le L'och).
 - **Dr. Cindy Van Dover (U.S.A.)**, hosted by LM2E and IC-MES, is a deep-sea biologist with an interest in the ecology of chemosynthetic ecosystems. Her current research focuses primarily on deep-ocean exploration and the study of biodiversity and biogeography of invertebrates from chemosynthetic ecosystems. She has published more than 90 articles in peer-reviewed journals and is an active participant and Chief Scientist in NSF- and NOAA-sponsored field programs to hydrothermal vents and other chemosynthetic environments. (Developed in consultation with Pierre-Marie Sarradin and Jozee Sarrazin of IFREMER and Mohamed Jebbar of UBO who submitted the proposal).



Box 2. Engaging and stimulating the IC-MES community

IC-MES Doctoral Ateliers



Ensuring the excellence of research over the long term requires investment in higher education and training. As an illustration of the IC-MES involvement in education, two doctoral ateliers have been organized. The first one was on vulnerability analysis and the second one dealt with Political and Historical Economic Approaches. The latter was led by Dr. D.G. Webster, from Dartmouth College (New Hampshire, USA).

Tea & Cookies events



The IC-MES recognized that informal events and friendly places for interdisciplinary mixing are often missing at IUEM. As a consequence, it is quite difficult to meet other researchers from outside of one's laboratory. This is why the International Chair and the Bibliothèque La Pérouse (BLP) are now inviting their networks to a monthly "Tea & Cookies". The goal is to invite people (heads of labs, researchers, students, doctoral students, companies, etc.) to share a snack at the BLP so that they unleash discussions and build cross-disciplinary friendships and collaborations. To date, two Tea & Cookies events have been successfully organized. Some special guests were present (i.e. Dr. Cindy Van Dover and Dr. Nicolas Cassar) and 20+ people joined every time, allowing everyone to make new connections for potential future research.

2. Research

The best research team will not make an impact without compelling and interesting research ideas. **Our research is structured around four main research projects, and we build upon them to frame future projects.**

Background

The research of the team attempts to find new ways of incorporating information about the human benefits of nature into decision-making. The original proposal for the IC-MES was to focus on creating methods for prioritizing ecosystem investments in France and Europe. This same proposal also proposed to focus on efforts to understand the impacts of ocean acidification on oyster aquaculture in Brittany.

Soon after arriving at the LabexMER, we were notified that we were awarded 3 new research grants in addition to a research grant that was applied for and received through Duke University and awarded by the Prince Albert II Foundation. Because of these new research opportunities, we changed the geographic focus of our work on ecosystem services. We describe the four major research projects below.

Four Research Foci and Supporting Grants

1. Using **new types of data**, including satellite, remote sensing, automated vessel data, social media, and *in situ* data to **assess and monitor marine ecosystem services that were previously too difficult to monitor: Mediterranean Cetaceans.**

Core Funding: ECOPOTENTIAL: €350,000 (4 years, H2020)

- Development of essential variables for cetacean management
- Integrating disparate sources of data on whale sightings
- Integrating ecological modeling of whale habitat, with new data, to create interactive maps of whale distribution
- Participatory processes, including participatory mapping

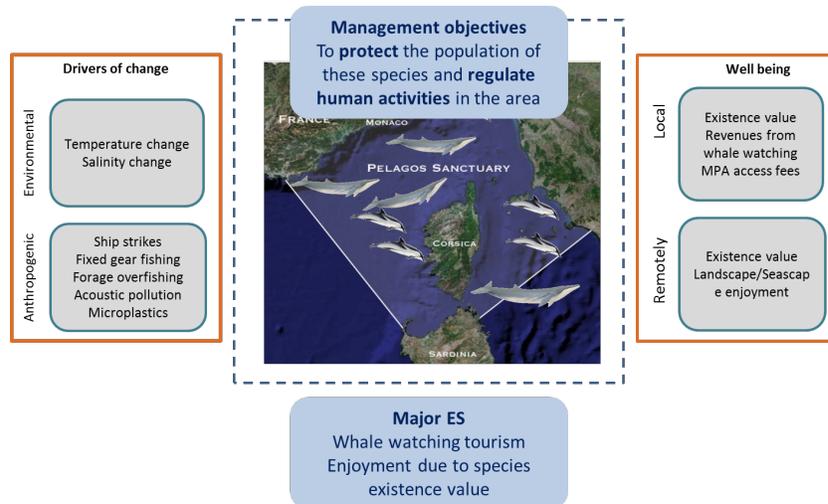


Figure 2. Conceptual framework of Ecopotential WP2 (where IC-MES is leader).
Source: IC-MES, 2016

- Using **spatially explicit data visualizations (especially maps)** to understand the **benefits of marine ecosystems**, especially when those benefits accrue to people far from the ecosystems where they are produced

Core funding: Extra-Local Ecosystem Services: €63,250 (1 year, Nature Conservancy’s Mapping Ocean Wealth)

- Research support (Dr. E. Drakou) to develop conceptual models and maps for marine ecosystem services enjoyed far from ecosystems where produced.



Figure 3. The online Atlas of Ocean Wealth provides a robust data-viewing framework to enable the visualization of coastal and marine ecosystem services.
Source: Mapping the Ocean Wealth, 2015

- Leveraging carbon science, payments for ecosystem services, including payments for carbon offsets, and ecosystem service assessments to **promote better conservation in countries with coastal ecosystems that store carbon?**

Core funding: Blue Forests: \$435,000 (4 years, Global Environment Facility)

- Developing knowledge and science to secure payments for carbon and ecosystem services in Ecuador, Abu Dhabi, Kenya, Mozambique, Madagascar, and Indonesia.
- The Economics, Policy and Political Economy of Blue Carbon Ecosystems

- A Synthesis of Ecosystem Service Values and Benefits for Blue Forests

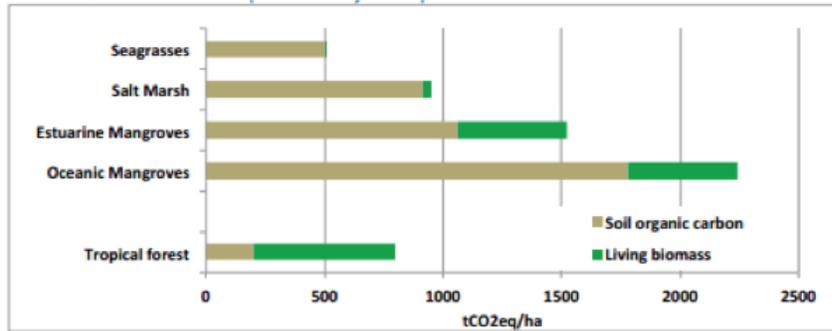


Figure 4. Global averages for carbon pools (soil organic carbon and living biomass) of focal coastal habitats. Tropical forests are included for comparison. Source: Murray, B. L. Pendleton, et al. 2015

- Using **indicators and analysis** to identify places where investments in new science, data, and management can yield greatest benefits to people: **Understanding the Impacts of Ocean Acidification and Climate Change on Coral Reefs and People:** €90,000 (funded through the Prince Albert II Foundation to Duke University, doctoral funds from LabexMer and Région de Bretagne)

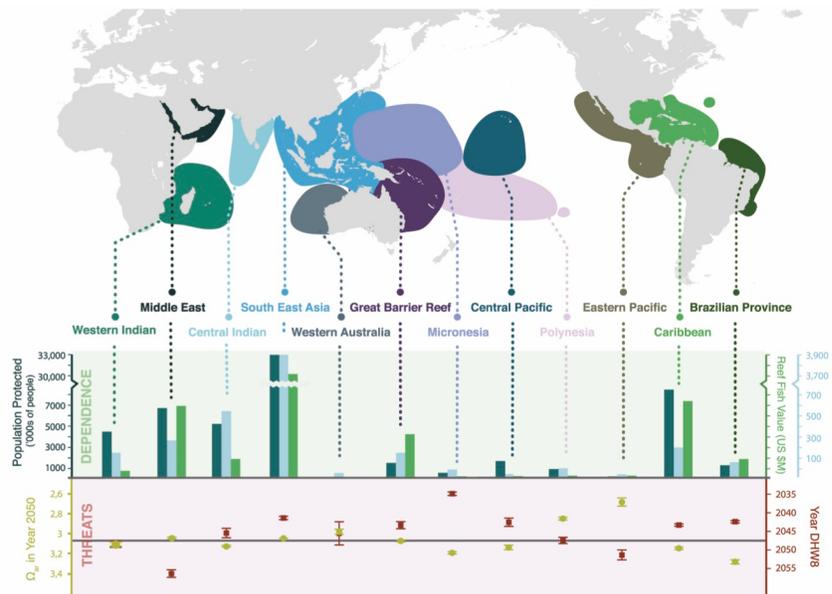


Figure 5. Regional dependence by ocean province on ecosystem services and average CO₂-related threats (Source: Pendleton, L., Comte, A. et al. in review)

Additionally, as Chair Pendleton helped to write the proposal for **ResponSEable:** €330,000 (4 years, including €90,000 for Oceanopolis)

- Developing new marine ecosystem services data management and communications for ocean literacy (currently led by Pascal Raux and Denis Bailly)
- Currently led by Pascal Raux and Denis Bailly.
- Pendleton serves on the Ocean Literacy Think Tank

In the **Appendices**, we describe the projects in more detail, including a discussion of students, research associates, and collaborators involved.

Additional funding

Based on these four main research projects and their related research questions, we developed other proposals that have already been funded or are still pending.

Funded proposals

- 1) **Participatory Mapping of Ecosystem Services at the Pelagos Sanctuary for Marine Mammals** (October 2016)
 - Funded by LabexMER
 - Amount granted: €5,000
 - Project lead by Dr. E. Drakou
- 2) **Organisation of the Young Researchers' Workshop at the MSEAS Symposium** (May 2016)
 - Funded by LabexMer and UBO Research Commission
 - Amount granted: €4,500
 - Project lead by Dr. Evangelia Drakou and Adrien Comte
- 3) **Conference participation**
 - Attending the GEO BON Open Science Conference (€1,350 for Perrine Laroche, funded by LabexMER)
 - Attending the 13th International Coral Reef Symposium (€2,400 for Adrien Comte, funded by LabexMER)
- 4) **Three-week seminar on spatial planning**
 - High-level seminar on Spatial Planning for the Deep Sea in International Waters by Dr. Cindy Van Dover
 - Funded by LabexMER
 - Amount granted: €3,500€

Pending

- 1) **EUROMARINE 2016 proposal submitted**
 - Objective: to fund a workshop to explore coastal community vulnerability to changes in ecosystem services entitled “Developing a method for understanding coastal community vulnerability in Europe”
 - Amount requested: €7,380
 - Project lead: Dr. Amber Himes-Cornell
- 2) **Interreg project submitted under the ATLANTIC regional call**
 - Name: “ALICE: Towards a better management of Atlantic Landscapes: developing tools to characterise biodiversity and eCosystem sErVICES”
 - Coordinator: University of Cantabria, Spain

- Project duration: 24 months
- Amount requested: €2,531,201.91

3) Interreg project submitted under the ADRION call for the Adriatic-Ionian region:

- Name: “CETUSS: Satellite and in-situ data integration for the monitoring and sustainable management of Cetaceans-based ToUriSm Sites in the ADRION Region”
- Coordinator: National Research Council of Italy and IC-MES (which was unable to lead the project directly because we lie outside of the call’s geographical area)
- Project duration: 24 months
- Amount requested: €1,753,109.28

4) Field work proposal submitted to Ifrecor

- Objective: vulnerability and adaptation of a French Outre-mer dependent on coral reefs ecosystem services
- Amount requested: €40,000
- Project lead: Adrien Comte

5) Blue Carbon Think Tank to be submitted to LabexMER

- Objective: to create a multinational research team on blue carbon at the LabexMER, with a focus on francophone countries.
- Amount requested: €50,000
- Project lead: Dr. Linwood Pendleton

3. Achievements

In the last year and a half, the IC-MES core team contributed to the **publication of 25 papers, took part in editorial activities, organized sessions at 8+ international meetings and workshops, hosted 32 webinars, gave many speeches, and involved itself in teaching at several levels.** This intense activity, is reflective of both the quality of the research conducted and the high-profile of our working partners, largely contributed to the international visibility of the IC-MES, IUEM and LabexMer labs. In order to increase our international visibility and attractiveness to the next level, we are now working with the IUEM IT Team to develop a website dedicated to IC-MES research activities (www.anthroocean.org)

Publications by the Chair Team

Publications are listed here according to whether or not they were funded directly by LabexMER.¹

Research funded by the LabexMER

Journal articles

1. **Pendleton, L., Comte, A.**, Chris Langdon, Julia Ekstrom, Sarah Cooley, Lisa Suatoni, Mike Beck, Luke Brander, Laretta Burke, Josh Cinner, Carolyn Doherty, Peter Edwards, Dwight Gledhill, Liqing Jiang, Ruben van Hoodonk, Louise Teh, George G. Waldbusser. Coral reefs and people in a high CO₂ world: where can science make a difference to people? (accepted with minor revisions at PLoS One)
2. **Pendleton L**, Hoegh-Guldberg O, Langdon C, Comte A. 2016. Multiple Stressors and Ecological Complexity Require a New Approach to Coral Reef Research. **Frontiers in Marine Science**, (3245 views or downloads)
3. **Pendleton, L.**, Thébaud, O., Mongruel, R., and H. Levrel. 2016. Has the value of global marine and coastal ecosystem services changed? **Marine Policy** (1150+ downloads)
4. Ekstrom, J., Suatoni, L., Cooley, S., **Pendleton, L.** and others. 2015. Vulnerability and adaptation of US shellfisheries to ocean acidification. **Nature Climate Change**
5. **Pendleton, L.**, Mongruel, R., Beaumont, N., Hooper, T., and M. Charles. 2015. A Triage Approach to Improve the Relevance of Marine Ecosystem Services Assessments. **Marine Ecological Progress Series**.
6. **Pendleton, L.** 2014. Signed Peer Reviews as a Means to Improve Scholarly Publishing. **Journal of Ocean and Coastal Economics**

¹ The articles mention the following statement: *This work was supported by the "Laboratoire d'Excellence" LabexMER (ANR-10-LABX-19) at the European Institute of Marine Sciences (IUEM).*

Book Chapters and Contributions

1. Charles, M., Mongruel, R., Beaumont, N., Hooper, T., Levrel, H., Thiébaud, E. and **L. Pendleton** (2016). Towards effective marine and coastal ecosystem services assessment in marine management. In: Potschin, M., Haines-Young, R., Fish, R. and Turner, R.K. (eds) Routledge Handbook of Ecosystem Services.
2. **Pendleton L., Drakou E.** Adding up the benefits. In: Spalding M., Brumbaugh R.D., Landis E. (2016). Atlas of Ocean Wealth. The Nature Conservancy, Arlington VA ([reported](#) on in the Guardian newspaper).

Working Papers

1. Catherine E. Lovelock, Ruth Reef, Jennifer Howard, **Linwood Pendleton** et al. Bonanza of benefits: Restoring blue carbon ecosystems (will be submitted to Nature or Nature Climate Change)
2. **Comte, A., Pendleton, L.,** Quillérou, E. and D. Bailly. Informing climate investment policies for coastal populations. Ocean-Climate Platform
3. **Drakou, E., Pendleton L.** et al. When Ecosystem and their services are not co-located. Mapping Ocean Wealth Project.

Publications written in residence at LABEX²

1. **Himes-Cornell, A.,** Maguire, C., Kasperski, S., Hoelting, K. and Pollnac, R., 2016. Understanding vulnerability in Alaska fishing communities: A validation methodology for rapid assessment of indices related to well-being. **Ocean & Coastal Management**
2. **Himes-Cornell, A.** and S. Kasperski (2016). Using indicators to aid in the assessment of vulnerability and resiliency in Alaskan fishing communities. **Coastal Management**
3. Kent, K. and **A. Himes-Cornell** (2016). Making landfall: The importance of support services in understanding the community context of backward linkages in fisheries. **Coastal Management** 44(4)
4. Wasson, K., Suarez, B., Akhavan, A., McCarthy E., Kildow, J., Johnson, K., Fountain, M., Woolfolk, A., Silberstein, M., **Pendleton, L.,** and D. Feliz. 2015. Lessons learned from an ecosystem-based management approach to restoration of a California estuary. **Marine Policy**
5. Clark, N., Ardron, J. and L. **Pendleton.** 2015. Evaluating the Basic Elements of Transparency of Regional Fisheries Management Organizations. **Marine Policy**
6. Willemen L, Burkhard B, Crossman N, **Drakou EG,** Palomo I. Editorial: Best practices for mapping ecosystem services. **Ecosystem Services.** 2015;13: 1–5
7. **Drakou EG,** Crossman N, Willemen L, Burkhard B, Palomo I, Maes J, Peedel S. A visualisation and data sharing tool for ecosystem service maps: Lessons learnt, challenges and the way forward. **Ecosystem Services.** 2015; 134-140

² LABEX/IUEM is noted as primary affiliation

8. Rochette, J., Gjerde, K., Druel, E., Ardron, J., Craw, A., Halpin, P., **Pendleton, L.**, Teleki, K, and J. Cleary. 2014. Delivering the Aichi target 11: challenges & opportunities for marine ABJ. **Aquatic Conservation**. Vol 24, S2, pages 31-43

Book Chapters

1. **Drakou EG**, Liqueste C, Beaumont N, Boon A, Viitasalo M, and V. Agostini Mapping Marine and Coastal Ecosystem Services (forthcoming)
2. Beaumont N, Arkema K, **Drakou EG**, Griffiths C, Hooper T, Liqueste C, Teneva L, Ruskule A, Heiskanen AS. Applying Ecosystem Service Mapping in Marine Areas (forthcoming)
3. **Drakou EG**, Willemen L, Crossman N, Burkhard B, Palomo I, Maes J, Conti M. The Ecosystem Services Partnership Visualization Tool (forthcoming).

Working Papers

1. Cohen-Shacham E, Dayan T, **Drakou EG**, Feitelson E, deGroot R, Thollon M, Beltrame C. Mapping and assessment of ecosystem services in a data-poor versus a data-rich area: the Hula and Camargue coastal wetlands.
2. GRID-Arendal. 2016. The Socio-Economics of West African Coastal Communities: A Synthesis of Studies Regarding Large Marine Ecosystems. United Nations Environment Programme, Abidjan Convention Secretariat and GRID-Arendal, Nairobi, Abidjan and Arendal. (authored by Anne Kaup and Linwood Pendleton)

Policy Reports

1. The Ocean and Us: Connecting the Ocean to the Sustainable Development Goals. Neumann, C., T. Bryan, L. **Pendleton**, A. Kaup, J. Glavan (eds) (2015) GRID-Arendal, Arendal, Norway. p. 8.

Editorial Activities

- Dr. Linwood Pendleton is a founding member of the Editorial Board of the Journal of Ocean and Coastal Economics and reviews papers for a large number of journals.
- Dr. Linwood Pendleton is subject editor in ICES – Journal of Marine Science
- Dr. Evangelia Drakou is a Subject Editor of the [One Ecosystem](#) and a Topic Editor of the [Frontiers in Ecology and Evolution](#).

Sessions Organized at International Meetings

Using its networks and connections, several meetings were organized by the IC-MES core team. Here is a non-exhaustive list of them

- 1) Ecosystem Services Partnership
 - Application of MCES in the Real World: from local to national and supranational levels. Co-hosted by Alexander van Oudenhoven and **Linwood Pendleton**.

- Major Tools to Assess MCES: valuation versus mapping, Thursday, 12 November 2015, 10-12:30. Hosted by **Evangelia Drakou**.

- 2) EU Ecosystem Services Partnership Meeting
 - Informing marine and coastal policy using ecosystem service assessments: evidence from real world applications (**Drakou EG**, Liqueste C, Kermagoret C, Beaumont N)
 - ES Indicators: what you measure is what you get? (van Oudenhoven A, Schroeter M, **Drakou EG**, Albert C)
 - Solving bottlenecks in ES mapping (Willemens L, Palomo I, **Drakou EG**, Crossman N, Burkhard B)

- 3) MSEAS: Young Researchers Workshop: **Evangelia Drakou**, Charlene Kermagoret, **Adrien Comte**, Brita Trapman

- 4) GEOBON Open Science Meeting: Essential Variables for Ecosystem Services: Patricia Balvanera, Aletta Bonn, **Evangelia Drakou**

- 5) Carbon Science for Blue Forest Projects. Organized and hosted an international meeting to explore the most recent advances in Blue Carbon science. Zanzibar.

Selected Speeches and Presentations

Linwood Pendleton gave speeches and keynote presentations to **various audiences**, including researchers from Marine studies, MPA managers and practitioners, policymakers, international organizations, foundations and other institutions. Selected presentations include:

- Plenary Presentation: The Economics of Deep Sea Mining. Seatech Week. October 16, 2014
- Keynote Speech: Reflections on Marine Ecosystem Services. Valmer Final Meeting. Torquay. January 2015
- Invited Speaker: Human Impacts of Ocean Acidification. Oceanopolis. May 19 2015
- Invited Speaker: Human Impacts of Ocean Acidification. World Oceans Day. UNESCO. Paris. June 2015.
- Keynote Speech: Indicators. MSEAS/ICES. Brest. June 2016

Teaching

Teaching is an important part of the IC-MES activities. Beyond the three-week high-level seminar on deep sea spatial planning, Linwood Pendleton is involved in the following classes:

- 1) **Writing for English Language Journals** (2015 and 2016) – UBO

- Objective: being able to write in English is crucial for any researcher career. This class teaches young researchers how to frame, write, and edit a manuscript suitable for publication in top international journals.
 - Level: Doctoral students
 - Additional information: SIAME funding was used to invite Dr. Cindy van Dover to co-teach the class for both years.
- 2) **Marine Ecosystem Services** (2015 and 2016) – Rennes AgroCampus
- Objective: presenting existing approaches, economic instruments available and methods for assessing ecosystem services and managing marine ecosystems.
 - Level: Masters students
- 3) **Doctoral Ateliers (workshops)** were sponsored by the IC-MES to provide special opportunities for doctoral students to conduct thought experiments about how they would apply selected methods to their research topics. The first atelier featured vulnerability approaches. The second atelier was led by visiting researcher, Dr. D.G. Webster from Dartmouth University who helped students envision how they would apply historical, political economic approaches.

Webinars hosted

The International Chair plays a **very active role in the organization and hosting of webinars through the Marine Ecosystem Services Partnership**, which is directed by Pendleton. This format is very practical to gather people from all over the world and to share experience, knowledge and build cooperation with international partners. IC-MES, as the current home of the Marine Ecosystem Services Partnership, organized its own webinars and also collaborated the Deep Ocean Stewardship Initiative (DOSI) and the Conservation Strategy Fund. The complete list of 30+ webinars organized and hosted by the IC-MES is available in Appendix.

Communication and outreach: going digital

Good communication, across platforms is important if our work is to make a difference. The IC-MES works with a variety of outlets to make its work known, including traditional newspapers, magazines, and online media. IC-MES research is featured on Linwood Pendleton's website (www.PeopleAndOceans.org) in the form of **columns, blogs, and podcasts** (see Box 3). The team is also active on Twitter where it shares updates, publications and information to our community. **In order to increase the visibility of the IC-MES, we are in the process of developing a dedicated website** that will be soon online on at www.AnthropOcean.org. The main goal is to better showcase IC-MES's research, but the website also provides the opportunity to create a brand around the Chair's activities. To do so, we are closely working with the IUEM IT team.

Box 3. Blogs and Podcasts

- “Time to Bring the Value of Nature Back to Earth” (January 2016), by Linwood Pendleton
- “The Ocean: a drop of water in the Paris climate negotiations” (January 2016), by Adrien Comte
- “Inserting ‘Oceans’ into the Paris Climate Conversation” (October 2015): An Interview with Dorothee Herr
- “Learning to Speak Ecosystem Services” (February 2015) by Christian Neumann, Linwood Pendleton, Marianne Kettunen, Tundi Agardy
- “Marine Ecosystem Services: How Is That Valuation Thing Treating You?” (September 2014). by Linwood Pendleton
- “You Say Conservation is Good for People: Well, Prove It” (podcast adapted from Valmer keynote speech listed above, April 2015), by Linwood Pendleton
- “Below the Surface with NOAA’s Margaret Davidson” (podcast interview May 2016) Linwood Pendleton as interviewer

Appendix I. Research Up Close

ECOPOTENTIAL – Using Earth Observations to Assess and Monitor Ecosystem Services in European Protected Areas

- Funder: European Union Horizon 2020
- Local Collaborators:
 - Evangelia Drakou, co-lead, Doctoral Researcher (**Amure, UBO**)
 - Amber Himes-Cornell (**Amure, UBO**)
 - Additionally, there are 48 international collaborating institutions of whom our principal collaborators are UNESCO's Intergovernmental Oceanographic Commission and the TETHYS Institute.

Description

The ECOPOTENTIAL project brings together remote sensing experts, ecological modelers, ecosystem service scientists, and protected area managers to find new ways of assessing and monitoring ecosystem services in protected areas across Europe. Our role in the project includes: 1) being the lead social scientists on the project (and only economist), and 2) being the lead for applications to marine systems, especially the Large Marine Ecosystems of the Mediterranean and Caribbean Seas. We serve on the Coordination Committee and we are members of 4 work packages.

Research Foci:

1. The use of Essential Variables and indicators in monitoring ecosystem services.

Essential variables (EVs) have been proposed as a way of creating a limited set of variables that can describe the state of a system (including change or stasis) over time and space. The use of EVs allows institutions that collect data to focus their efforts on collecting data that will be broadly useful and meaningful over time. The ECOPOTENTIAL project seeks to understand if there exists, for Europe, a set of EVs from remote sensing platforms that are essential to monitoring key ecosystem services in protected areas. Our work involves developing a conceptual model for these EVs, linking remote sensing-based Ecosystem Service EVs to other more widely used EVs (e.g. Climate EVs, Biodiversity EVs, and Ocean EVs). We also examine the relationship between indicators needed to understand a specific ecosystem service, a limited set of critical variables that are common across a variety of ecosystem services and ecosystems, and EVs. (This topic is also the subject of Ms. Laroche's internship.)

2. Finding Common Ground Among Competing Frameworks for Understanding Social-Ecological Systems

Different disciplines use different types of conceptual models to characterize complicated social-ecological systems. These different disciplines may: start from

different etiologies, attempt to engage or inform different social processes, or be driven by differences in data and process. The various work packages of ECO-POTENTIAL demonstrate such a diversity of conceptual models and approaches. In this research, we create a unified conceptual model that brings together a variety of conceptual models about the social-ecological processes that create ecosystem services.

3. Scaling Up Ecosystem Services - Assessing Ecosystem Service Changes Across Heterogeneous Seascapes

The Ecopotential project seeks to understand if protected areas across Europe are effective in protecting ecosystem services across the region. To test this hypothesis, we need to know how to compare ecosystem service changes in different regions and over time. While ecological measures may be easily compared across time and space (e.g. # of whales, forest cover), ecosystem services depend on the interaction of ecological outcomes and human demand both of which may vary over time and space. In this part of our research we explore different ways of comparing ecosystem service gains and losses across spatial and temporal scales, with a special focus on the performance of different kinds of measures of ecosystem services.

4. Using Remote Sensing to Assess and Monitor Ecosystem Services Provided by Whales in the Mediterranean Sea

We are leading a case study application to determine whether we can indeed use remote sensing and *in situ data* to assess and monitor the ecosystem services provided by whales and other cetaceans in the Mediterranean Large Marine Ecosystem Service. This application will apply findings from the first three research elements. We begin the research by collaborating with the TETHYS Institute, the British Antarctic Survey, and the Italian Center for National Research.

Extra-local Ecosystem Services

- Funder: The Nature Conservancy
- Duration: funding ended October 2015, writing continues.
- Collaborators:
 - Evangelia Drakou, co-lead, Doctoral Researcher (**Amure, UBO**)
 - Carter Ingram (Wildlife Conservation Society)
 - Lisa Teneva (Conservation International)
 - Micah Efron (National Oceanic and Atmospheric Administration)

Abstract

Local, regional and global policies to restore, manage and protect our oceans and coasts, call for the inclusion of ecosystem services (ES) in policy-relevant research. Marine and coastal ecosystem benefits to humans are usually assessed, quantified and mapped at the ecosystem level to inform policy and decision-making. Yet those benefits may reach

humans beyond the provisioning ecosystem, at the regional or even global level. Current efforts to map the ES generated by a single ecosystem rarely consider the distribution of benefits at the regional or global level. We build upon the literature to spatially apply the concept of “extra-local” ecosystem benefits to account for the benefits enjoyed far from the ecosystem that generates them. We put emphasis on the space of occurrence of the different components of the ES provision framework and apply the proposed conceptual framework to ES generated by such ecosystems as open oceans (e.g. for fisheries) and the carbon sequestration service provided by coastal blue carbon ecosystems. We then demonstrate the different extents of the mapping outputs generated by the traditional versus the extra-local mapping approach. Such an approach proved to be challenging mostly due to data availability and methodological issues. Practical applications of the proposed framework can open the door for better and more robust data and improved ES assessment and mapping methodologies. Such assessments can be used to inform ES compensation schemes, benefit sharing protocols and oceanic and coastal policies.

The Economics, Policy and Political Economy of Blue Carbon Ecosystems

- Funder: The Global Environmental Facility
- Duration: July 2015- June 2019
- Local Collaborators (there are dozens of international collaborators):
 - Amber Himes-Cornell, co-lead, Doctoral Researcher (**Amure, UBO**)
 - Dorothee Herr, Program Manager (IUCN) and doctoral student (**IUEM**)
 - Steve Crooks (Blue Carbon Expert, COP Delegate, Member of IPCC SBSTA on Coastal Wetlands)

Description

This project is part of a multi-national effort to study and implement policies for harnessing the economic and financial value of blue forest ecosystems – ecosystems that store carbon in their soils (especially mangroves, salt marshes and seagrasses). The project includes two key research foci:

1. Harnessing the Economic Value of Non-Carbon Co-Benefits in Blue Forests – this includes a review of methods and values associated with ecosystems delivered by these coastal habitats as well as specific guidance about whether local partners have the capacity to capture these values through payments of ecosystem services.
2. The Political Economy of Blue Carbon – this research is the topic of Dorothee Herr’s doctoral theses and includes a focus on the institutional, financial, and political economic factors that influence whether carbon offset buyers will participate in payments for carbon offsets in blue forest areas. This research includes 4 specific sub-topics:
 - a. The Political Economy of Blue Carbon Projects – Policy, Political, and Market Enabling Conditions required for Coastal Carbon Payments in Developing Countries,

- b. The Social and Public Good Effects of Payment Schemes for Coastal Carbon in Developing Countries,
- c. A Framework For Prioritizing Global Coastal Restoration Opportunities with a focus on mangroves in selected developing countries,
- d. Matching Supply and Demand in Blue Carbon Markets

Additionally, as part of this work, we have been working with Luis Tito de Morais (IRD) and François Le Loc'h (IRD) to create a Blue Carbon Think Tank at the LABEX.

Understanding the Impacts of Ocean Acidification and Climate Change on People

- Funder: Prince Albert II Foundation, Agence National de Recherche, Region of Brittany
- Local Collaborators: Adrien Comte (doctoral student, **UBO/Amure**)
- Other collaborators: More than 17 international collaborators

In the original proposal for the Chair, we anticipated applying a vulnerability approach to oyster aquaculture in Brittany. At the urging of Adrien Comte's thesis committee, we changed the focus from oysters back to coral reefs (the original target for our research). We did so for the following reasons:

- the committee, especially Dr. J.P. Gattuso felt that ocean acidification was not a major concern for French Atlantic aquaculture. This industry is currently focuses on dealing with issues of disease, not ocean acidification;
- leadership at the national level in France decided to pursue a strong marine research presence at the COP21 meetings held in France. Coral reefs and ocean acidification figured prominently in the French position and we were urged to pursue a program of research that would simultaneously address the threats of climate change and ocean acidification on coral reefs and people.

This research attempts to develop sets of interdisciplinary indicators to identify where on the planet climate change and ocean acidification may have large impacts on human wellbeing and where action needs to be taken to address these impacts. The work is broken down into a series of papers that include:

- 1) Multiple Stressors and Ecological Complexity Require A New Approach to Coral Reef Research, by **Linwood Pendleton**, Ove Hoegh-Guldberg, Chris Langdon, and **Adrien Comte. *Frontiers in Marine Science.* (2016)**

Ocean acidification, climate change, and other environmental stressors threaten coral reef ecosystems and the people who depend upon them. New science shows that these multiple stressors interact and may affect numerous physiological and ecological processes in complex ways. The interaction of multiple stressors and ecological

complexity may mean that the negative effects on coral reef ecosystems will happen sooner and be more severe than previously thought. Yet, most research on the effects of global change on coral reefs focus on one or few stressors and pathways. Based on a critical review of the literature, we call for a regionally targeted strategy of mesocosm-level research to address this complexity and provide more realistic predictions about coral reef impacts in the face of global environmental change. We believe similar approaches are needed for other ecosystems that face global environmental change.

2) Coral Reefs and People in a High-CO₂ World: Where can science make a difference to people? With Adrien Comte and 17 other collaborators (accepted with minor revisions at PLoS ONE)

Shallow water coral reefs, and the people who depend upon them, are at risk due to two key environmental stresses associated with increasing levels of carbon dioxide in the atmosphere: 1) coral bleaching and mortality driven largely by elevated sea surface temperature, and 2) ocean acidification. These threats damage coral reefs and may result in a loss of the ecosystem services they provide. Many places, however, lack the science and data needed to design policy actions to offset the impacts on people and corals that could occur in a higher CO₂ world. Here we use an indicator approach to map human dependence on the coral reefs and the principle threats to corals from a high CO₂ world in order to illustrate where new science and data could help coral reef-dependent human communities cope with increasing atmospheric CO₂.

Appendix II. Webinars hosted by IC-MES

Organized by the Chair, for the Chair networks

- “Blue Solutions for Ecosystem Services – Finding What’s Worked, and Helping to Do It Again,” May 25, 2016, Featuring Christian Neumann, GRID-Arendal
- “Incorporating Ecosystem Services Into Federal Decision Making: Perspectives from the National Oceanic and Atmospheric Administration (NOAA),” April 28, 2016, Featuring NOAA economists: Doug Lipton, Tracy Rouleau and Peter Wiley

Webinars hosted jointly with the Deep Ocean Stewardship Initiative (Pendleton is a Steering Committee Member)

2015

- “Deep-sea Genetic Resources: Governance, Science and Stewardship,” December 16, 2015, Featuring Harriet Harden-Davies, Australian National Centre for Ocean Resources and Security (ANCORS), University of Wollongong
- “The Deep-Ocean Stewardship Initiative: Going Forward,” November 18, 2015, Featuring Lisa Levin, a Distinguished Professor and Director of the Center for Marine Biodiversity and Conservation at Scripps Institution of Oceanography, UC San Diego, CA & founding leader of the Deep-Ocean Stewardship Initiative.
- “Deep-Sea Fisheries,” October 20, 2015, Featuring: Glen Wright, a Research Fellow in International Marine Policy at the Institute for Sustainable Development and International Relations (IDDRI) in Paris, and Claire Nouvian, the Director & Founder of BLOOM Association.
- “The Deep Blue Economy,” September 16, 2015, Featuring: Charles Goddard, Editorial Director, Asia Pacific, Economist Intelligence Unit, and Maria Damanaki, the current Global Managing Director for Oceans at The Nature Conservancy.
- “The Oil Industry’s Technological Advancements for the Ocean Environment: BP’s DELOS Project,” June 17, 2015, Featuring Rob O’Brien, an Environmental Scientist at BP.
- “Industrial Mining in the Deep Sea: Social and Environmental Considerations,” May 14, 2015, Featuring: Dr. Samantha Smith, President of the International Marine Minerals Society, and Charles Roche, Executive Director of the Mineral Policy Institute

2014

- “Laws, Policies and Plans for the Deep Ocean” Kristina Gjerde (IUCN & DOSI) May 7, 2014, Featuring Kristina Gjerde
- “High Seas Governance” (IASS & DOSI) May 7, 2014, Featuring Jeff Ardon

- “Toward a Deep Ocean Observing Strategy” (DOOS) – May 21, 2014, Featuring Eric Lindstrom
- “The Description of Ecologically or Biologically Significant Areas” (CBD ESBAs) – May 21, 2014, Featuring Pat Halpin
- “Towards an Environmental Impact Assessment: Guidelines for the Deep Sea” (ISA) – June 4, 2014, Featuring Sandor Mulsow
- “Deep-Ocean Stewardship and the MIDAS Project” (MIDAS) June 18, 2014, Featuring Phil Weaver
- “Pacific Islands: Deep Sea Minerals” (SPC-SOPAC) June 18, 2014, Featuring Hannah Lily
- “Science Community and Ocean Business Community Collaboration for Sustainability” (WOC) July 2, 2014, Featuring Paul Holthus
- “The regulation of Activities in the Deep Sea: a Conservation Perspective” (DSCC) July 2, 2014, Featuring Matt Gianni
- “Global Ocean Biodiversity Initiative” (GOBI) July 16, 2014, Featuring David Johnson
- “From Decline to Recovery: A Rescue Package for the Global Ocean (GOC)” July 16, 2014, Featuring Kristian Teleki

Webinars held in preparation for the ESP conference in West Africa (IC-MES organized 2 days of Sessions):

Webinar I, November 3, 2015

- “The benefits to people of expanding Marine Protected Area,” Alistair McVittie, SRUC, Edinburgh
- “Integrating monetary and non-monetary approaches for incorporating the value of marine cultural ecosystem services into decisions,” Jasper Kenter, The Scottish Association for Marine Science (SAMS)
- “The artist and the sea – exploring oceans’ inspiration for culture, art and design,” Anne Böehnke-Henrichs, Environmental Systems Analysis Group, Wageningen University, The Netherlands

Webinar II, November 4, 2015

- “Many voices of the Manukau: Mapping coastal narratives in Aotearoa New Zealand,” Kate Davies, NIWA, New Zealand
- “Natural capital and ecosystem services advance seafood sustainability – an illustrated learning journey,” Katherine Short, Partner, Terra Moana Ltd
- “Gaining Consensus: the Steps before a Marine Value Experiment,” Darla Hatton MacDonald, Associate Professor, University of Tasmania

Webinars hosted as Part of the Conservation Economics Initiative

- “Forgone Revenues from Ngardmau’s 2011 Sea Cucumber Harvest” June 23, 2015, Featuring Dr. Rhona Barr, economist at Conservation Strategy Fund
- “La expansión del Program Socio-Bosque en las zonas de manglar del Ecuador: insumos técnicos para su implementacion,” May 21, 2015, Featuring: Acompañe a Jorge Higinio Maldonado, profesor asociado en la Facultad de Economía de la Universidad de los Andes (Bogotá, Colombia) y director adjunto del Programa Latinoamericano y del Caribe de Economía Ambiental (LACEEP), y a Rocío Moreno-Sánchez, Economista senior de Conservation Strategy (hosted in Spanish)
- “Economic comparison of alternatives to building a port on Goat Islands: Does Jamaica need to sacrifice a world class conservation site to build a world class port?” April 8, 2015, Featuring Aaron Bruner, Senior Economist at Conservation Strategy Fund
- “The Social Impacts of MPAs in Fishing Communities: Evidence from Observations, Interviews, Surveys and Experiments,” March 10, 2015,
- Featuring Xavier Basurto is the Assistant Professor of Sustainability Science within the division of Marine Science & Conservation at Duke University
- “Can Deep Sea Mining Benefit Society? Looking at marine industrialization through an economic lens,” November 18, 2014, Featuring Linwood Pendleton
- “An Economic Instrument for Coral Reefs,” October 22, 2014, Featuring: Christopher LaFranchi, Founder & CEO of OneReef Worldwide Stewardship