ACADEMIC CURRICULUM VITAE: Jan 2020

OVE HOEGH-GULDBERG

GLOBAL CHANGE INSTITUTE

UNIVERSITY OF QUEENSLAND https://en.wikipedia.org/wiki/Ove_Hoegh-Guldberg_(biologist)

WWW.LINKEDIN.COM/IN/OVEHG

NATIONALITY

NATIONALITY	
	Australian (born: 26/9/59, Sydney)
EDUCATION	
1989 1982	Ph.D. University of California, Los Angeles (supervisor: Leonard Muscatine) B.Sc. (Hons, 1st class) University of Sydney (supervisor: Rosaline Hinde)
CURRENT POSITI	ONS
2000-present	Professor of Marine Studies, University of Queensland
2006-present	Deputy Director, ARC Centre for Excellence for Coral Reef Studies
2016-present	Affiliated Professor in Tropical Marine Biology, University of Copenhagen
SIGNIFICANT APP	POINTMENTS
2010-2019	Founding Director, Global Change Institute, University of Queensland
2013-present	Fellow, Australian Academy of Science
2016-2018	Coordinating Lead Author, Chapter 3 ('Impacts') of the UN Intergovernmental Panel on Climate Change (IPCC) Special Report on Implications of the 1.5°C.
2018-present	World Commission on the Ethics of Scientific Knowledge and
0016 0017	Technology (COMEST); Appointed Commissioner by UNESCO Director-Genera
2016-2017	Member and drafting author, Preparation of a non-binding Declaration on the
2016	Ethical implications of climate change (accepted in 2018; UNESCO) Australian Delegate, IPCC Scoping meeting: Special Report on 1.5°C (Geneva)
2016	Australian Delegate, IFCC Scoping meeting: Special Report on 1.5 C (Geneva) Australian Delegate, UN IPCC Scoping meeting: Special Report
2010	on Oceans/Cryosphere (Monaco)
2015-present	Independent Expert Panel for Great Barrier Reef 2050 (Chaired by Australian Chief Scientist Prof Ian Chubb; reports directly to State & Federal Environment Ministers)
2018-present	Partnership Management Committee, Great Barrier Reef Foundation
2013-2014	Global Partnership for Oceans, Chair, Blue Ribbon Panel (World Bank report)
2015-present	GBR Taskforce, water quality (Chair: QLD Chief scientist, Prof Geoff Garret)
2010-2014	Coordinating Lead Author, "The Ocean" Chapter, 5th Assessment Report,
2010 - 2014	Intergovernmental Panel on Climate Change (United Nations, IPCC, Geneva) Affiliated Researcher, Centre for Ocean Solutions, Stanford University
2010 – 2014 2014-present	Chair, Technical Advisory Group, Great Barrier Reef Foundation
2014-present 2012-2017	Chief Scientist, Catlin Seaview Survey (www.globalreefrecord.org)
2001-2010	Visiting Professor, Stanford University
2001-2010	Director and Founder, Stanford University Australia Marine Studies Program
2010-2013	Senior Executive Management Committee, University of Queensland
2006-2012	Member, Board of Reviewing Editors, Science Magazine
2000-2009	Director and Founder, Centre for Marine Studies, University of Queensland
2001-2009	Chair, Climate Change and Coral health working group within CRTR GEF project.
2006-2010	Member, Royal Society, London, Marine Advisory Network (MAN)
2004-2010	Founding Member, Australian Climate Group (now Climate Science Australia)
2000-present:	Member, International Scientific Advisory Committee, GBR Foundation
2004-2007	Member, Royal Society, London, Working Group on Ocean Acidification
2000-2009	Director, Heron Is, Low Isles and Morton Bay Research Stations

HONORS AND AWARDS

2020 2019 2019	Australia Day Ambassador (appointed by Queensland Premier) Highly Cited Researcher (top 1% of field, preceding decade; Clarivate Analytics) Listed among the 100 most influential people in Climate Policy (Apolitical.co)
2017	Emmy Award winning film 'Chasing Coral' (was Chief Scientific Advisor)
2016	Banksia Foundation International Award
2014	Prince Albert II of Monaco Climate Change Award
2014	American Society of Microbiologists, ASM Lecturer for 2014
2013	ARC Laureate Fellowship (2013-2018)
2008	Queensland 2008 Smart State Premier's Fellow (2008 - 2013)
2011-2019	Highly Cited Researcher (Thomson Reuters, 5 annual awards, 13 articles as HiCi)
2010	Thomson Reuters' ISI Highly Cited Researchers (most cited Australian scientist in
	the area of Climate Change, 3 rd most cited internationally; top cited Ecologist)
2009	Whitley Certificate of Commendation for book on Great Barrier Reef
2009	Thomson-Reuters' ISI Hot Paper Award.
2009	Wesley College Foundation (University of Sydney) Medal 2009
1999	The 1999 Eureka Prize for Scientific Research
1996	University of Sydney Teaching Excellence Award
1989	University of California (UCLA) Distinguished Scholar Award

PROFESSIONAL SOCIETIES AND BOARD MEMBERSHIP (EXAMPLES)

Science Magazine (Board of Reviewing Editors, 2006-2012) Biodiversity Research Centre Academia Sinica, Taipei (Advisory Board; 2010 - present) Leibniz Center for Tropical Marine Ecology, Bremen (Advisory Board; 2010 - present) International Symbiosis Society (Governing Councilor, 2004-2010)

SCIENCE COMMUNICATION AND OUTREACH (EXAMPLES):

Hoegh-Guldberg is dedicated to communicating the messages of sciences, especially in terms of demystifying climate change and its effects on coral reefs and other ocean ecosystems. In this regard, Ove has worked on numerous film projects with film-makers such as Sir David Attenborough, Richard Smith, and Jeff Orlowski to ensure that science is helping underpin public understanding and evidence-based decision making. Examples from many include:

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Sir David Attenborough: Death of the Oceans (start 27:43 - <u>www.youtube.com/watch?v=LkGYBHNjKCs</u>)
Sir David Attenborough: The Future Reef, <u>http://www.attenboroughsreef.com/the_future_reef.php</u>
Jeff Orlowsky: Chief Science Advisor, "Chasing Coral", <u>https://www.youtube.com/watch?v=b6fHA9R2cKI</u>
Joshua Jackson: <u>http://theyearsproject.com/video/joshua-jackson-scientist-ove-hoegh-guldberg/</u>
TED talk: Sydney <u>https://www.youtube.com/watch?v=2ZLVajY1iuo</u>
ABC Australian Story: <u>https://www.abc.net.au/austory/australian-story:-into-hot-water/8308500</u>
Education series: <u>https://www.youtube.com/watch?v=JtZwDf6Pkdk&t=440s</u>
Underwater lectures: <u>https://www.youtube.com/watch?v=ztKpBl0JUWE</u>
Youtube: <u>https://www.youtube.com/watch?v=TkpBl0JUWE</u>
The GCI building: (<u>https://www.youtube.com/watch?v=F0JpgUIcPXY</u>)
UQ Solar: GCI project (https://www.youtube.com/watch?time_continue=58&v=S4IaaZ_bYwM)
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BIOGRAPHICAL SKETCH

Ove Hoegh-Guldberg is Professor of Marine Science at the University of Queensland in Brisbane, Australia Over the past 10 years he was founding Director of the Global Change Institute (GCI: www.gci.uq.edu.au) and is currently Deputy Director of the Centre for Excellence in Coral Reef Studies (www.coralcoe.org.au, since 2006) and Affiliated Professor in Tropical Marine Biology at the University of Copenhagen (2016present). Ove's research focuses on the impacts of global change on marine ecosystems and is one of the most cited authors on climate change. In addition to pursuing scientific discovery personally, Ove has had a 20-year history in leading research organisations such as the Centre for Marine Studies and the Global Change Institute, both at the University of Queensland. These roles have seen him raise more than \$150 million for research and infrastructure. He has also been a dedicated communicator of the threat posed by ocean warming and acidification to marine ecosystems, one of the earliest scientists to identify the serious threat posed by climate change for coral reefs in a landmark paper published in 1999. In addition to leading a research group at the University Queensland, he is the Coordinating Lead Author for the 'Oceans' chapter for the Fifth Assessment report of the Intergovernmental Panel on Climate Change (IPCC) and the Coordinating Lead Author on the Impacts chapter of the IPCC Special report on 1.5°C. He has been awarded a Eureka Prize for his scientific research and a QLD Premier's fellowship, and is currently an ARC Laureate Fellow and is a member of the Australian Academy of Science. He received the Prince Albert II 2014 Award for Climate Change, and the 2016 International Award from the Banksia Foundation. He has been recognised as a Highly Cited Researcher again in 2012, 2014, 2018 and 2019 (top 1% of his field, coral reefs and was listed among the 100 most influential people in Climate Policy (List available at Apolitical: https://apolitical.co/lists/most-influential-climate-100/).

SCHOLARSHIP:

Ove has been cited 58,884 times and has produced over 350 peer-reviewed publications (>36 in Science, Nature or PNAS) plus 35 peer-reviewed book chapters, reports and 2 international patents. In 2019, together with P Hutching and M J Kingsford, Ove helped produce the second edition of the edited book (Hutching, Kingsford and Hoegh-Guldberg, "The Great Barrier Reef", Springer/CSIRO Publishing; winner of a Whitley Award commendation in 2009, with all Royalties from the sales of this book continuing to go to the Australian Coral Reef Society to fund research students. Papers include major contributions to physiology, ecology, environmental politics, and climate change. Ove's most significant scientific contributions have been recognized recently through invited reviews by leading journals such as Science (Hoegh-Guldberg and Bruno 2010; Hoegh-Guldberg et al. 2007; Hoegh-Guldberg et al. 2019), major research and infrastructure funding (>\$150 million since 2000; ARC Centre for Excellence, Queensland Smart State Premier's Fellowship; ARC Laureate Fellowship) and his appointment as Coordinating Lead Author of Chapter 30 ("The Oceans") for the 5th Assessment Report, as well as Coordinating Lead Author for Chapter 3 (Impacts) on the special report on the implications of 1.5°C (for the Intergovernmental Panel on Climate Change). He is one of the most cited Australian science authors (and 3rd internationally out of 53,136 authors) on the subject of "climate change" as per Thomson-Reuter's ISI Web of Science (2011, http://archive.sciencewatch.com/ana/st/climate/authors/;). This represents a group of less than 0.5% of all published researchers in the world. This has been updated to Ove being among the top 0.01% most productive scientists globally (Joannidis et al. 2019) PLoS biology, 17(8), p.e3000384.). Ove received awards from Thomson Reuters in 2012 (Citation Award Winner in Ecology Thomson Reuters Citation & Innovation Award). Ove's H-index is 80 (ISI 2011) or 105 (Google Scholar) and he have received several awards from Thomson-Reuters ISI Web of Science for papers that are among ISI's hottest paper (most cited over the initial two years) in the both the area of "climate change" and "ocean acidification" (http://archive.sciencewatch.com/). Other contributions include over 30 book chapters and refereed reports, and 2 international patents (together A/Prof Sophie Dove) on a novel class of Green Fluorescent Pigments. He has received several major prizes, including the 1999 Eureka Prize for leading the discovery of the molecular mechanism behind mass coral bleaching and mortality (Hoegh-Guldberg and Jones 1999; Hoegh-Guldberg and Smith 1989a; Hoegh-Guldberg and

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Smith 1989b) and impact of global climate change on the earth's coral reefs (Hoegh-Guldberg 1999). These early discoveries increasingly focused on the impact of global climate change on the marine ecosystems and the implications for people and societies (Hoegh-Guldberg *et al.* 2009). As part of this, Ove has worked on numerous film projects with environmental film-makers such as Sir David Attenborough, Richard Smith, and Jeff Orlowski to communicate these key messages for rasing awareness and protecting coral reefs. Recent awards include the Thomson Reuters (Top 12 Australian Scientists), Prince Albert II 2014 Award for Climate Change, 2016 International Award from the Banksia Award, QLD Premier's fellowship, and ARC Laureate Fellow).

RESEARCH TEAM MEMBERS

The research pursued and supervised by Ove is powered by a talented group of students and scholars with interests spanning ocean warming and acidification, evolution, physiology, biochemistry and molecular biology of plant-animal symbioses, coevolution, biology of hermatypic corals, calcification, coral bleaching, climate change, invertebrate larvae, physiology/biochemistry of larval development and climate change policy. Ove has supervised (as primary and secondary supervisor) over 65 research fellows, PhD and Honours students since 2000 plus scores of collaborations with leading scientists from over 30 countries.

RESEARCH PUBLICATIONS (>350 PEER-REVIEWED ARTICLES)

Clarivate Analytics:

Sum of the Times Cited	38,428
Sum of Times Cited without self-citations:	36,989
Citing Articles:	24,685
Citing Articles without self-citations:	24,424
Average Citations per Item:	117.16
H-index:	80
Google Scholar:	
Sum of the Times Cited:	58,884
Average Citations per Item:	69.47
H-index:	105
i10-index	311

Clarivate Analytics:

Hoegh-Guldberg was a Highly Cited author for the following years: 2001, 2014, 2015, 2018, 2019 and has 13 articles in the Highly Cited category.

He is currently ranked in the top 0.01% of all scientists globally based on impact. Among 7 million authors with at least 5 papers (and 35 million with at least one paper), Hoegh-Guldberg is currently ranked 2,020 for all-career and 993 for single recent year impact (Ioannidis et al. 2019, A standardized citation metrics author database annotated for scientific field. *PLoS biology*, *17*(8), p.e3000384.) https://data.mendeley.com/datasets/btchxktzyw/1

Hoegh-Guldberg was also named one of the world's top 100 most influential people in climate policy by Apolitical, joining natural historian <u>David Attenborough</u>, Greta Thunberg, and former United States of America vice-president <u>Al Gore</u> among others (March 2019^[32]).

SAMPLE PUBLICATIONS FROM > 350 ARTICLES:

- Hoegh-Guldberg O., D. Jacob, M. Taylor, T. Guillén Bolaños, M. Bindi, S. Brown, I. A. Camilloni, A. Diedhiou, R. Djalante, K. Ebi, F. Engelbrecht, J. Guiot, Y. Hijioka, S. Mehrotra, C. W. Hope, A. J. Payne, H-O Pörtner, S. I. Seneviratne, A. Thomas, R. Warren, G. Zhou, 2019. The human imperative of stabilizing global climate change at 1.5°C. *Science*, 365(6459), p.eaaw6974.
- Hoegh-Guldberg, O., Northrop, E. and Lubchenco, J., 2019. The ocean is key to achieving climate and societal goals. *Science*, *365*(6460), pp.1372-1374.
- Fine, M., **Hoegh-Guldberg**, O., Meroz-Fine, E. and Dove, S., 2019. Ecological changes over 90 years at Low Isles on the Great Barrier Reef. *Nature Communications*, *10*(1), pp.1-8.
- Kline, D.I., Teneva, L., Okamoto, D.K., Schneider, K., Caldeira, K., Miard, T., Chai, A., Marker, M., Dunbar, R.B., Mitchell, B.G., Dove, S. and Hoegh-Guldberg, O., 2019. Living coral tissue slows skeletal dissolution related to ocean acidification. *Nature Ecology & Evolution*, 3(10), pp.1438-1444.
- **Hoegh-Guldberg** O., D. Jacob, M. Taylor, et al. (2018) Impacts of 1.5°C global warming on natural and human systems. *In:* Global warming of 1.5°C an IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty [V. Masson-Delmotte et al.
- Hoegh-Guldberg, O., E. V. Kennedy, H. L. Beyer, C. McClennen, and H. P. Possingham. (2018). Securing a Long-term Future for Coral Reefs. Trends in Ecology & Evolution. (Paper: 2438; 1-9 pp)
- Beyer, H. L., E. V. Kennedy, M. Beger, C. A. Chen, J. E. Cinner, E. S. Darling, C. M. Eakin, R. D. Gates, S. F. Heron, N. Knowlton, David O. Obura, Stephen R. Palumbi, Hugh P. Possingham, Marji Puotinen, Runting, Rebecca K. Runting, William J. Skirving, Mark Spalding, Kerrie Wilson, Sally Wood, John E. Veron and Ove **Hoegh-Guldberg** (2018). Risk-sensitive planning for conserving coral reefs under rapid climate change. Conservation Letters:e12587.
- Harrould-Kolieb, E. R., and O. Hoegh-Guldberg. 2019. A governing framework for international ocean acidification policy. Marine Policy 102:10-20.
- Hutchings, P., M. Kingsford, and O. **Hoegh-Guldberg**. 2019. Book plus chapters: The Great Barrier Reef: biology, environment and management. CSIRO Publishing, Sydney Australia (1st and 2nd editions).
- Seneviratne, S. I., J. Rogelj, R. Seferian, R. Wartenburger, M. R. Allen, M. Cain, R. J. Millar, K. L. Ebi, N. Ellis, O. Hoegh-Guldberg, A. J. Payne, C. F. Schleussner, P. Tschakert, and R. F. Warren. 2018. The many possible climates from the Paris Agreement's aim of 1.5 degrees C warming. Nature 558:41-49.
- Achlatis, M., M. Pernice, K. Green, P. Guagliardo, M.R. Kilburn, O. Hoegh-Guldberg and S. Dove. Single-cell measurement of ammonium and bicarbonate uptake within a photosymbiotic bioeroding sponge. The ISME (Nature group). doi:10.1038/s41396-017-0044-2
- Fang, J. K. H., C. H. L. Schoenberg, M. A. Mello-Athayde, M. Achlatis, O. Hoegh-Guldberg, and S. Dove. 2018. Bleaching and mortality of a photosymbiotic bioeroding sponge under future carbon dioxide emission scenarios. Oecologia 187:25-35.
- Frade, P. R., P. Bongaerts, N. Englebert, A. Rogers, M. Gonzalez-Rivero, and O. Hoegh-Guldberg. (2018). Deep reefs of the Great Barrier Reef offer limited thermal refuge during mass coral bleaching. Nature communications 9: article 3447.
- Gattuso, J. P., A. Magnan, R. Bille, W. W. L. Cheung, E. L. Howes, F. Joos, D. Allemand, L. Bopp, S. R. Cooley, C. M. Eakin, O. Hoegh-Guldberg, R. P. Kelly, H. O. Portner, A. D. Rogers, J. M. Baxter, D. Laffoley, D. Osborn, A. Rankovic, J. Rochette, U. R. Sumaila, S. Treyer, and C. Turley. 2015. Contrasting futures for ocean and society from different anthropogenic CO₂ emissions scenarios. Science 349:45-50.
- Bongaerts, P., P. R. Frade, K. B. Hay, N. Englebert, K. R. Latijnhouwers, R. P. Bak, M. J. Vermeij, and O. Hoegh-Guldberg. 2015. Deep down on a Caribbean reef: lower mesophotic depths harbor a specialized coral-endosymbiont community. Scientific Reports 5.
- Englebert, N., P. Bongaerts, P. Muir, K. B. Hay, and O. **Hoegh-Guldberg**. 2015. Deepest zooxanthellate corals of the Great Barrier Reef and Coral Sea. Marine Biodiversity 45:1-2.

Hoegh-Guldberg, O. "Reviving the Ocean Economy: the case for action." (WWF major report, 2015).

- **Hoegh-Guldberg**, O. 2014. Coral reef sustainability through adaptation: glimmer of hope or persistent mirage? Current Opinion in Environmental Sustainability 7:127-133.
- **Hoegh-Guldberg**, O. 2014. Coral reefs in the Anthropocene: persistence or the end of the line? Geological Society, London, Special Publications 395:167-183.
- Hoegh-Guldberg, O., R. Cai, E. S. Poloczanska, P. G. et al. (2014). Chapter 30. The Ocean. Pages 1655-1731 in V. R. Barros et al., Editors of 'Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part B: Regional Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC, Geneva)
- Kaniewska, Paulina, Shahar Alon, Sarit Karako-Lampert, **Ove Hoegh-Guldberg**, and Oren Levy. Signaling cascades and the importance of moonlight in coral broadcast mass spawning. eLife 4 (2015): e09991.
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