

## *Supplementary Material*

### *Collecting and collating papers*

We searched for articles in Web of Science (all databases) on March 1, 2019, using the following search term “coral reef”, refining the search results to the following journals: Conservation Letters, PNAS, PROC B, Coral Reefs, PlosOne, Marine Policy, Marine Biology, Frontiers in Marine Science and for articles published between 2003 and 2018 (inclusive). A second search was conducted on April 8, 2019, in Web of Science using “coral reef” as the search term and refining to the following journals: Nature, and Science, within the same range of publication years.

### *Coding papers*

The articles were divided amongst the author team and coding was conducted using the following a priori protocol:

The following meta-data field were derived from Web of Science records: author name, institutional affiliation, country of affiliation, title of study, abstract, publication year, DOI, times cited, journal name.

Author names were cleaned manually by looking up each paper and author information to confirm spelling, initials, etc.... to determine unique authors.

A team of reviewers worked collaboratively to code information about authors and studies. The following information on authors was coded for each author listed on a paper: identified gender, and whether the author was based in the country of study. The following information was coded from each article: country(country) of study, study region, whether the study took place in a territory of another sovereign nation or a disputed territory, study type, marine realm of study.

•**Gender:** The following decision process was used to determine author gender: 1) Each author was searched in Google. 2). Based on their online profiles, reviewers made a determination on gender based on stated pronouns. In the absence of pronouns, reviewers based their decision on their own personal knowledge and/or consultation with others on the author team who may know an author personally. 3). If no determination could be made, gender was entered as “undetermined.” For authors that could not be located online, gender was entered as “not found.” We recognize that the method of determining gender is imprecise and may underrepresent individuals who identify as non-binary (linking to issues highlighted in the discussion). Our aim with this study is to highlight gender representation issues in coral reef science, not to provide a precise tabulation of gender composition. Thus, the gender categories we code for are a heuristic estimate of gender in the field.

•**Study country:** Based on the abstract and/or full text, reviewers coded what country the study took place in. For studies in more than 5 countries, studies were coded for a study region instead. For overseas territories, study country was coded as the sovereign nation and territories were indicated in a distinct column.

•**Study region:** Region where study took place, also includes global studies

- Study type: Studies could be coded for multiple types including fieldwork, modeling, synthesis, laboratory, and desk studies
- Marine realm: Marine realm (using the Marine Ecoregions of the World typology) of study
- Is the author based in the country of study?: Based on the author’s institutional affiliation for each study, reviewers coded this field as “yes”, “no”, or “NA” depending on whether the country of affiliation is same as the country of study
- Order of authors (e.g., first, last, etc....): This was coded using a custom R script based on Web of Science records.

### *Geographic groupings*

Throughout this study, we aim to examine geographic representation of authors - particularly taking into account the impact of historical legacies and social factors (e.g., colonialism, capitalist markets and expansion, and geopolitical relations) on the evolution of scientific disciplines, research infrastructure, and scientific collaboration. Comparing patterns between countries who have benefitted from past history and current conditions and those who have not, can shed light on how far coral reef science has progressed in terms of improving diversity, equity, and inclusion. In order to make these types of comparisons, we needed to categorize and label sets of nations - which in itself, raises its own issues for inclusion and representation. Historically, the way in which nations were categorized was based on economic characteristics - such as income and gross domestic product - which has been widely denounced as an out-of-date and one-dimensional metric that does not accurately nor fairly reflect nations. Terminology revolved around developed vs. developing vs. underdeveloped nations, Third World vs. First World, and Global North vs. Global South. All of these groupings have been debated over the years and many have fallen out of use as development actors increasingly recognize and acknowledge the problematic nature of these often externally assigned labels. In this paper, we opted to use OECD membership as a way to analyze collaboration across different economies with different histories and resources available for scientific research in coral reef ecosystems. While OECD membership is not perfect, it is generally a self-selected process where countries choose to apply for membership and thus, is to a degree, a more inclusive process for countries to self-identify. We used 2021 OECD membership to categorize countries, and categorized territories, protectorates, and collectivities of OECD countries as OECD (e.g., French Polynesia, as an overseas collectivity of France).

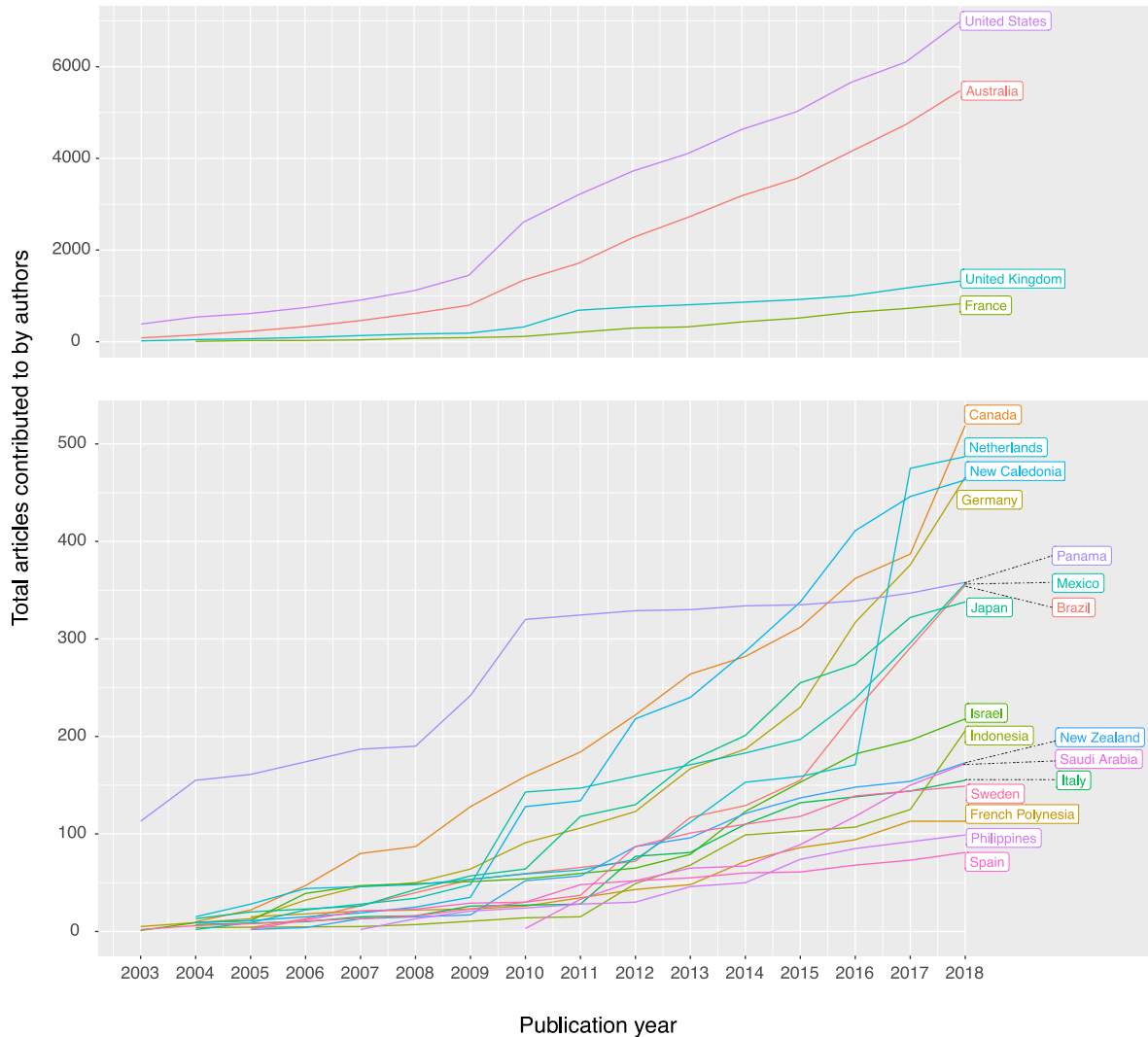
However, there are still issues that arise when grappling with geopolitical labels (e.g., Latin America, East Asia, and the Pacific) that are useful for describing groups of countries but often reflect Western-driven groupings. We adopted the World Bank region categories to examine authorship patterns for this paper, however, we also want to recognize that there are standing issues with these categorizations, and they should not be taken as a standard of practice.

### *Network analysis - coding node characteristics*

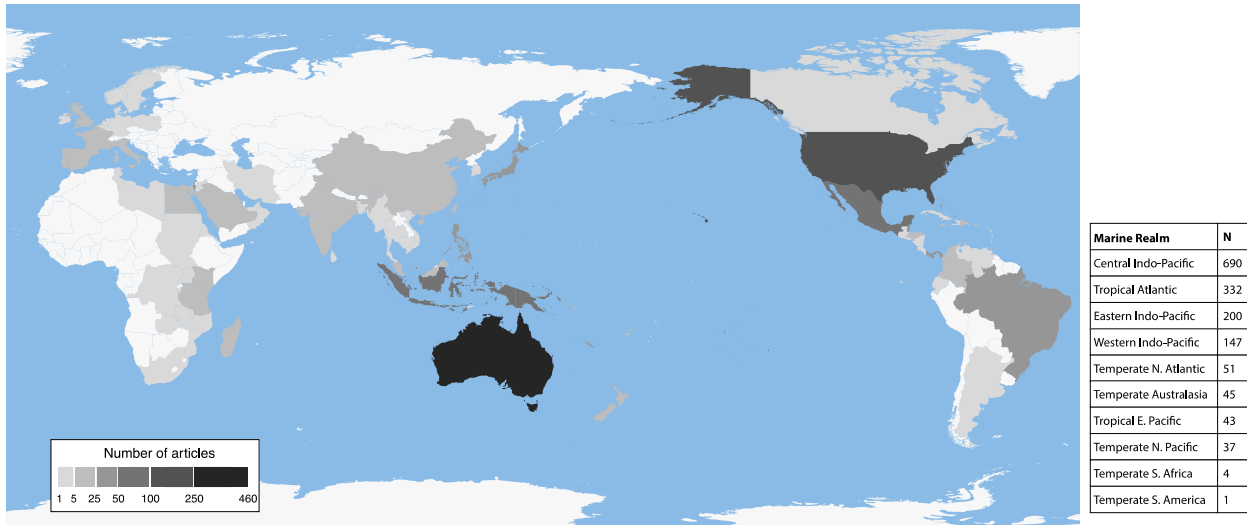
For the network analysis, authors who had multiple affiliations across different countries listed on a single article were reduced to one affiliation (prioritizing affiliations in non-OECD countries if they had affiliations in both). 7.88% of the total author pool had more than one affiliation listed on a paper (322 authors across 329 articles), with 31% of those having an affiliation in both OECD and non-

OECD nations (100 authors). We assigned affiliations to OECD nations using the 2021 membership regardless of year of publication. Our designation scheme was balanced, to a degree between OECD vs. non-OECD assignments.

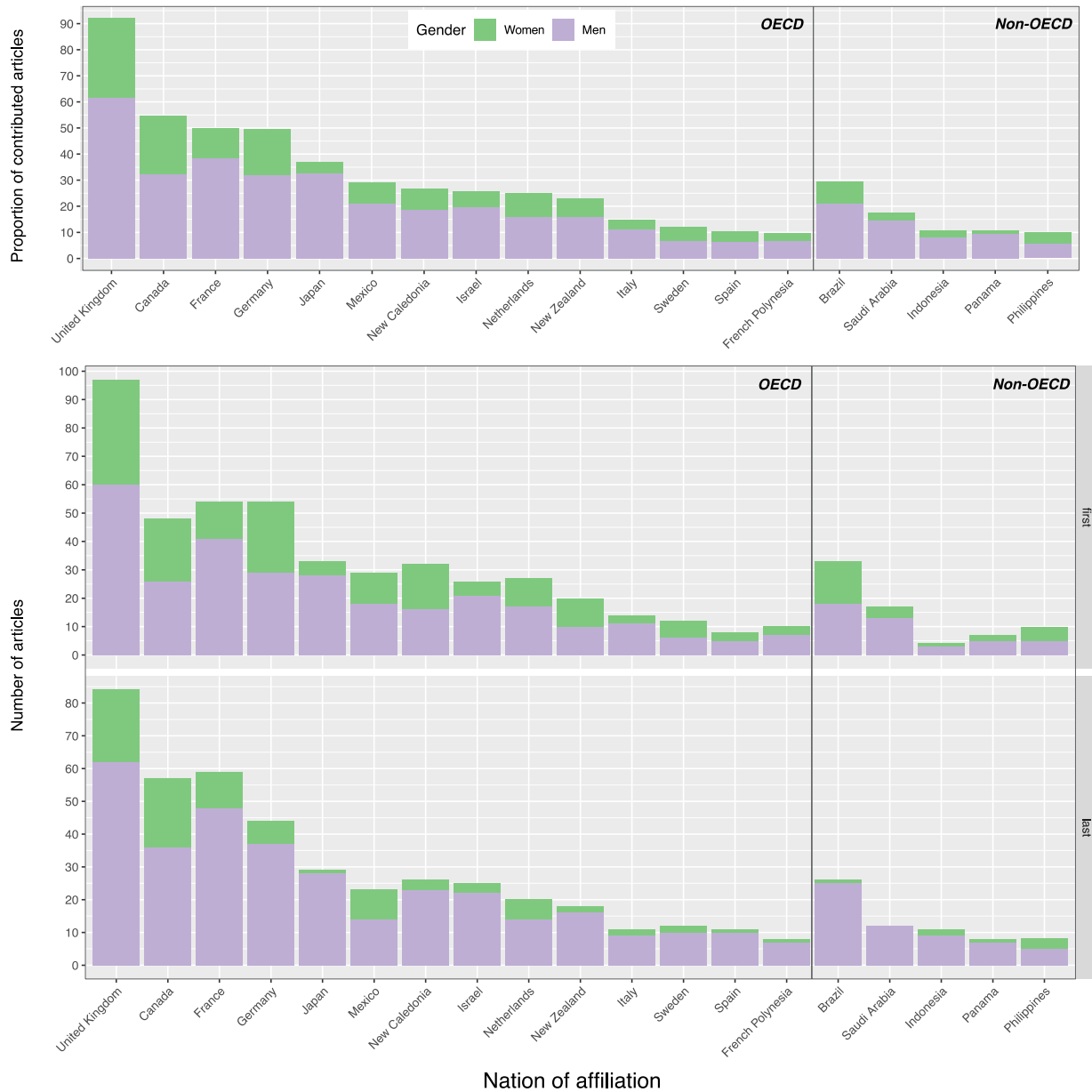
### Supplementary Figures



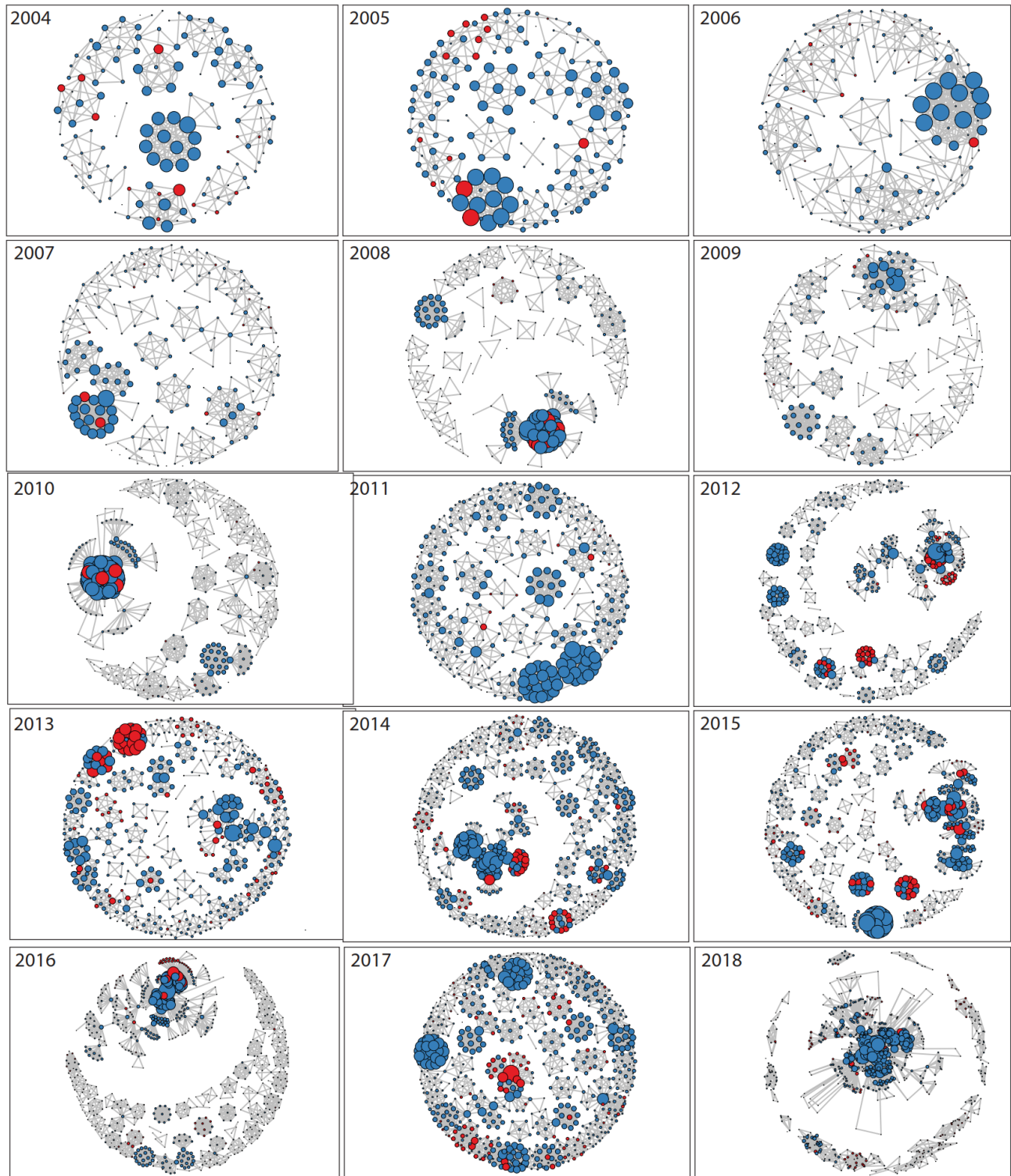
**Supplementary Figure 1.** Cumulative contribution of authors from all countries contributing to at least 20 articles total in the past 15 years to published articles in sampled pool. The top panel shows contributions from the top 4 producing countries (USA, Australia, UK, and France) followed by the other 16 countries in the bottom panel (Brazil, Canada, French Polynesia, Germany, Indonesia, Israel, Italy, Japan, Mexico, Netherlands, New Caledonia, New Zealand, Panama, Philippines, Saudi Arabia, Spain, Sweden).



**Supplementary Figure 2.** Distribution of study efforts across countries (n=1,444). This reflects both studies that were field, laboratory, and desk-based (synthesis, modelling). Articles that had either a regional/global focus or no clear geographic focus (n=233 articles) do not appear on this map. Summary of studies by marine realm are in the inset table on the right.



**Supplementary Figure 3.** Gender representation of authors disaggregated by their country affiliation, for countries that have contributed to at least 20 articles in the last 15 years. First panel illustrates the contribution of all authors in any author position. Second and third panels illustrate number of articles where authors from each nation were in first or last author position, disaggregated by gender.



*Author affiliation* ● non-OECD  
 ● OECD

**Supplementary Figures 4.** Co-author networks of research published in 2004 through to 2017 disaggregated by affiliation of authors (OECD vs. non-OECD). Each node represents a unique author/affiliation combination while each edge represents collaboration between authors on a publication; the size of the node indicates the number of articles that author contributed to that year. The length of the edge indicates how close authors are to each other (the more co-authored publications, the closer the authors). Each plot displays the co-authorship networks of all papers published in that year— and thus the clusters in each year are independent from each other—and illustrate annual shifts in collaborative networks.