

SIXTY YEARS OF *OCEANOGRAPHY AND MARINE BIOLOGY: AN ANNUAL REVIEW (OMBAR)* – A BRIEF RETROSPECTIVE AND PROSPECTIVE

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OMBAR: From the beginning

The vision of Harold Barnes – the founding editor-in-chief of *Oceanography and Marine Biology: an Annual Review* (OMBAR) – 60 years ago was that the journal would produce timely reviews by experts in the field of marine biology and oceanography. New areas would be highlighted, and previous reviews revisited from time to time to provide updates. This ethos was strongly maintained by Margaret Barnes, who succeeded Harold as editor-in-chief after he passed away in 1978, with Margaret being involved up until 2002 (see appreciation by Robin Gibson in the epilogue of this volume). Participation was generally by invitation and occasionally by recommendation.

Both Harold and Margaret were fine scientists, prolifically publishing on barnacles, but also very aware of the wider marine science landscape. The PhD thesis of the current editor-in-chief (SJH), written in the 1970s, was 40% on barnacles, and SJH has read and cited many of the Barnes' papers over the years. A particular favourite is Barnes & Powell (1950) on what would become called 'intense density-dependent processes' in a more jargonized age. In parallel with OMBAR, Harold Barnes founded the *Journal of Experimental Marine Biology and Ecology* (JEMBE) in 1967 and its active editing by both Harold and subsequently Margaret (until 1999) contributed to keeping them abreast of the field, aiding identification of emerging fields and experts, and hence invitations to contribute reviews to OMBAR. They were also avid attenders of conferences, particularly the European Marine Biology Symposia series which they helped establish – a good talk on an exciting topic could result in an invitation to submit a review to OMBAR.

In the last decade of her stewardship of OMBAR, Margaret as lead editor involved various colleagues from the Scottish Marine Biological Association/Scottish Association for Marine Science Laboratory at Dunstaffnage in co-editorial roles from volume 26 onwards (Alan Ansell, Robin Gibson); Ansell, Gibson and Barnes edited volumes 31–37; Gibson and Barnes edited volumes

38–40 when Margaret eventually stepped down in 2002 after 40 years association with the journal. Robin Gibson was involved as an editor-in-chief along with colleagues from both Dunstaffnage (John Gordon, David Hughes) and Millport (Jim Atkinson involved from Vol. 39, Philip Smith) until volume 50 (Vol. 41: Gibson, Atkinson; Vol. 42–48: Gibson, Atkinson, Gordon; Vol. 49: Gibson, Atkinson, Gordon, Hughes, Smith). Roger Hughes joined the editorial team from volume 50 (Gibson, Atkinson, Gordon, D.J. Hughes, Smith, R.N. Hughes), taking over as editor-in-chief after volume 51 (Vol. 52 R.N. Hughes, D.J. Hughes, Smith; Vol. 53–54 R.N. Hughes, D.J. Hughes, Smith, Dale), in turn handing over to SJH in 2016 (Vol. 55), just before sadly passing away.

SJH has tried to establish a larger and more diverse international editorial board, including some mid- and early-career scientists, to facilitate peer review of all manuscripts. This has fluctuated with work commitments of the team (Vol. 55: Hawkins, Dale, Evans, Firth, Hughes, Smith; Vol. 56: Hawkins, Dale, Evans, Firth, Smith; Vol. 57: Hawkins, Allcock, Bates, Firth, Smith, Swearer, Todd; Vol. 58: Hawkins, Allcock, Bates, Evans, Firth, McQuaid, Russell, Smith, Swearer, Todd; Vol. 59: Hawkins, Lemasson, Allcock, Bates, Byrne, Evans, Firth, Marzinelli, Russell, Sharples, Smith, Swearer, Todd; and finally this volume 60: Hawkins, Lemasson, Allcock, Bates, Byrne, Evans, Firth, Lucas, Marzinelli, Mumby, Russell, Smith, Swearer, Todd). Philip Smith is its longest serving member. Despite expanding to increase diversity, the editorial board retains a strong British, Irish and Commonwealth base.

The success of OMBAR stems very much from Harold's initiative, taken forward by Margaret's scholarship, wide knowledge, and supportive role as editor over many years. Cruz et al. (2022 – this volume) revisit Margaret Barnes' classic 1996 review in OMBAR of the stalked barnacle *Pollicipes* as a tribute to her research and scholarship.

The inaugural volume of OMBAR published in 1963 reads like an international Who's Who of marine science at the time (Figure 1). There was a very strong input from the physical, chemical and biological oceanographers as well as marine biologists covering topics of very broad scope: Tides (by Rossiter), The Geology of some Continental Shelves (by Stride), Optical Oceanography (by Jerlov); Underwater Television (by Harold Barnes himself), Chemical Oceanography (by Hood), Primary Production (by Yentsch), The Rhodophyta (by Dixon), Heterotrophic Micro-organisms (by Wood), Microdistribution of Plankton (by Cassie); Ecology and Functional Morphology of Molluscs (by Allen), Parasitic Copepods (by Boquet and Stock – the only review not by a single author), The Effects of Temperature and Salinity on Marine and Brackish Water Animals; Part 1 Temperature (by Kinne), The Biogeography and Intertidal Ecology of Australian Coasts (by Knox), Pogonophora (by Eve Southward), and finally Lisitzin contributed reviews on both Mean Sea Level and The Hydrography of European Arctic and Sub-arctic Seas. To save space and cram in more articles, the titles of cited references were omitted in earlier volumes, but they were still invaluable for keeping abreast of the literature (see Figure 1 – photographed in Eve Southward's office in 2021, who was still publishing on Pogonophora at 91 years of age).

It is interesting to reflect on the diversity of topics reviewed in OMBAR publications, and on what has been highly cited. A look back at the 20 most cited reviews published in OMBAR is given in Table 1. These cover a broad range of subjects from authors all over the world. Some older reviews may pre-date bibliometric information retrieval and not feature in this list. Interestingly and coincidentally, members of the current (and recently expanded) editorial board feature in this list (Hawkins & Hartnoll 1983, Byrne 2011). The current board also has several members who have contributed to OMBAR in the past and/or in this volume. Looking back over the top-cited papers over the last 10-year period (2009–2019, Table 2), the current board (Vol. 60) features again with Firth et al. (2016), Todd via Neo et al. (2017), Byrne again in addition to Byrne (2011) via Purcell et al. (2016). It is clear from Table 2 that a diversity of topics are covered in OMBAR reviews, including historical ecology (Lotze 2010). It is gratifying that both applied and pure research topics feature in these highly cited papers.

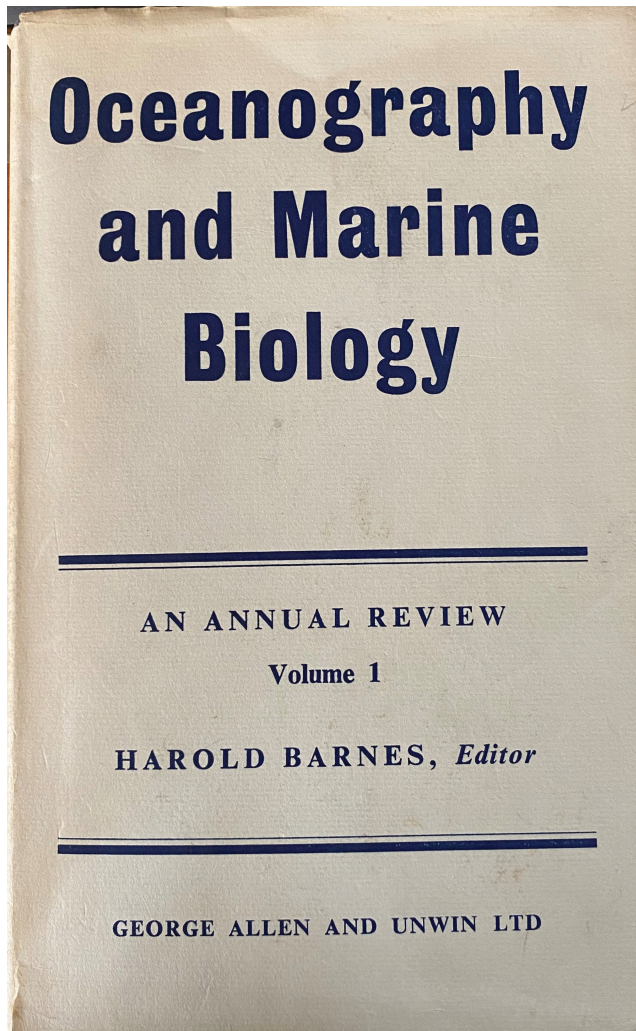


Figure 1 The first volume of OMBAR photographed in 2021 in the office of one of the original review authors. (Eve Southward of the Marine Biological Association of the UK.)

In the early days, OMBAR was published by Allen and Unwin followed by Aberdeen University Press, and then later by University College London. Since 1999 (Vol. 37), it has been published by various parts of Taylor and Francis, who also republished older volumes under their imprints. Physical sales of OMBAR peaked at the turn of the century, each hardcover volume selling 500–700 copies throughout the 2000s. Today, OMBAR has an excellent Impact Factor of over 6 (based on publications up to volume 58, published in 2020), with an outstanding h-index of 49 (Figure 2). Its 2020 CiteScore was 7.2 with Scopus, ranking OMBAR 9/224 journals in the field of Aquatic Science, and 7/128 in the field of Oceanography (in the 96th and 94th percentile, respectively). Figure 1 is based on data from Clarivate as this gives a complete record for the last 20 years, since Scopus has missed some years. The impact factor has fluctuated considerably in the last decade, reflecting the limited number of articles each year, but in most years it is over 4 with occasional higher peaks depending on its content that year (11 in 2014). Interestingly, Clarivate gives it an impact factor of 8

Table 1 Twenty most cited *Oceanography and Marine Biology: An Annual Review (OMBAR)* reviews of all time as shown by Scopus in early 2022

Reference	Number of citations
Diaz, R.J. & Rosenberg, R. 1995. Marine benthic hypoxia: a review of its ecological effects and the behavioural responses of benthic macrofauna. <i>OMBAR</i> , 33 , 245–03.	1,590
Heip, C.H.R., Vincx, M. & Vranken, G., 1985. The ecology of marine nematodes. <i>OMBAR</i> , 23 , 399–489.	906
Pawlik, J.R. 1992. Chemical ecology of the settlement of benthic marine invertebrates. <i>OMBAR</i> , 30 , 273–335.	735
Snelgrove, P.V.R. & Butman, C.A., 1994. Animal sediment relationships revisited: Cause versus effect. <i>OMBAR</i> , 32 , 111–177.	722
Airoldi, L. & Beck, M.W., 2007. Loss, status and trends for coastal marine habitats of Europe. <i>OMBAR</i> , 45 , 345–405.	696
Decho, A. 1990. Microbial exopolymer secretions in ocean environments: Their role (s) in food webs and marine processes. <i>OMBAR</i> , 28 , 73–153.	680
Carlton, J.T. 1985. Transoceanic and interoceanic dispersal of coastal marine organisms: the biology of ballast. <i>OMBAR</i> , 23 , 313–371.	635
Butman, C.A. 1987. Larval settlement of soft-sediment invertebrates: the spatial scales of pattern explained by active habitat selection and the emerging role of hydrodynamical processes. <i>OMBAR</i> , 25 , 113–165.	625
Shannon, L.V. 1985. The Benguela ecosystem, Evolution of the Benguela physical features and processes. <i>OMBAR</i> , 23 , 105–182.	579
Levin, L.A. 2003. Oxygen minimum zone benthos: adaptation and community response to hypoxia. <i>OMBAR</i> , 41 , 9–9.	558
Hicks, G.R. 1983. The ecology of marine meiobenthic harpacticoid copepods. <i>OMBAR</i> , 21 , 67–175.	542
Hawkins, S.J & Hartnoll, R.G. 1983. Grazing of intertidal algae by marine invertebrates. <i>OMBAR</i> , 21 , 195–282.	528
Byrne, M. 2011. Impact of ocean warming and ocean acidification on marine invertebrate life history stages: Vulnerabilities and potential for persistence in a changing ocean. <i>OMBAR</i> , 49 , 1–42.	507
Ballesteros, E. 2006. Mediterranean coralligenous assemblages: a synthesis of present knowledge. <i>OMBAR</i> , 44 , 123–195.	487
Elsdon, T.S., Wells, B.K., Campana, S.E., Gillanders, B.M., Jones, C.M., Limburg, K.E., Secor, D.H., Thorrold, S.R. & Walther, B.D., 2008. Otolith chemistry to describe movements and life-history parameters of fishes: hypotheses, assumptions, limitations and inferences. <i>OMBAR</i> , 46 , 297–330.	460
Thiel, M., Castilla, J.C., Fernández Bergia, M.E. & Navarrete, S. 2007. The Humboldt current system of northern and central Chile. <i>OMBAR</i> , 45 , 195–344.	449
Levin, L.A. 2005. Ecology of cold seep sediments: interactions of fauna with flow, chemistry and microbes. <i>OMBAR</i> , 43 , 11–56.	445
Smith, C.R. & Baco, A.R. 2003. Ecology of whale falls at the deep-sea floor. <i>OMBAR</i> , 41 , 311–354.	439
Doherty, P.J. & Williams, D.M. 1988. The replenishment of coral reef fish populations. <i>OMBAR</i> , 26 , 487–551.	439
Andrew, N.L. & Mapstone, B.D. 1987. Sampling and the description of spatial pattern in marine ecology. <i>OMBAR</i> , 25 , 39–90.	434

NB early contributions may be missed by bibliometric searches.

Table 2 Twenty most cited OMBAR reviews for the period 2009–2019 (Scopus, early 2022)

Reference	Number of citations
Byrne, M. 2011. Impact of ocean warming and ocean acidification on marine invertebrate life history stages: vulnerabilities and potential for persistence in a changing ocean. <i>OMBAR</i> , 49 , 1–42.	507
Stella, J.S., Pratchett, M.S., Hutchings, P.A. & Jones, G.P. 2011. Coral-associated invertebrates: diversity, ecology importance and vulnerability to disturbance. <i>OMBAR</i> , 49 , 43–104.	209
Firth, L.B., Knights, A.M., Bridger, D., Evans, A., Mieskowska, N., Moore, P.J., O'Connor, N.E., Sheehan, E.V., Thompson, R.C. & Hawkins, S.J. 2016. Ocean sprawl: challenges and opportunities for biodiversity management in a changing world. <i>OMBAR</i> , 54 , 193–269.	171
Pratchett, M.S., Caballes, C.F., Rivera-Posada, J.A. & Sweatman, H. 2014. Limits to understanding and managing outbreaks of crown-of-thorns starfish (<i>Acanthaster</i> spp). <i>OMBAR</i> , 52 , 133–200.	152
Mineur, F., Cook, E.J., Minchin, D., Bohn, K., Macleod, A. & Maggs, C.A., 2012. Changing coasts: marine aliens and artificial structures. <i>OMBAR</i> , 50 , 189–233.	140
Pratchett, M.S., Anderson, K.D., Hoogenboom, M.O., Widman, E., Baird, A.H., Pandolfi, J.M., Edmunds, P.J. & Lough, J.M. 2015. Spatial, temporal and taxonomic variation in coral growth—implications for the structure and function of coral reef ecosystems. <i>OMBAR</i> , 53 , 215–295.	138
Bonaldo, R.M., Hoey, A.S. & Bellwood, D.R. 2014. The ecosystem roles of parrotfishes on tropical reefs. <i>OMBAR</i> , 52 , 81–132.	112
Morrisey, D.J., Swales, A., Dittmann, S., Morrison, M.A., Lovelock, C.E. & Beard, C.M. 2010. The ecology and management of temperate mangroves. <i>OMBAR</i> , 48 , 43–160.	107
Thiel, M., Penna-Díaz, M.A., Luna-Jorquera, G., Salas, S., Sellanes, J. & Stotz, W. 2014. Citizen Scientists and Marine Research: Volunteer participants, their contributions, and projection for the future. <i>OMBAR</i> , 52 , 257–314.	106
Purcell, S.W., Conand, C., Uthicke, S. & Byrne, M. 2016. Ecological roles of exploited sea cucumbers. <i>OMBAR</i> , 54 , 375–394.	103
Tsounis, G., Rossi, S., Grigg, R., Santangelo, G., Bramanti, L. & Gili, J.M. 2010. The exploitation and conservation of precious corals. <i>OMBAR</i> , 48 , 161.	96
McMahon, K.W., Hamady, L.L. & Thorrold, S.R. 2013. Ocean ecogeochemistry: a review. <i>OMBAR</i> , 51 , 327–374.	76
Pillay, D. & Branch, G.M. 2011. Bioengineering effects of burrowing thalassinidean shrimps on marine soft-bottom ecosystems. <i>OMBAR</i> , 49 , 137–192.	69
Lotze, H.K., 2010. Historical reconstruction of human-induced changes in US estuaries. <i>OMBAR</i> , 48 , 267–338.	62
Graham, N.A., Ainsworth, T.D., Baird, A.H., Ban, N.C., Bay, L.K., Cinner, J.E., De Freitas, D.M., Diaz-Pulido, G., Dornelas, M., Dunn, S.R. & Fidelman, P.I. 2011. From microbes to people: tractable benefits of no-take areas for coral reefs. <i>OMBAR</i> , 49 , 105–136.	61
Peck, L. 2018. Antarctic marine biodiversity: adaptations, environments and responses to change. <i>OMBAR</i> , 56 , 105–236.	60
Neo, M., Wabnitz, C., Braley, R., Heslinga, G., Fauvelot, C., van Wynsberge, S., Andréfouët, S., Waters, C., Tan, S., Gomez, E. & Costello, M. 2017. Giant clams (Bivalvia: Cardiidae: Tridacninae): a comprehensive update of species and their distribution, current threats and conservation status. <i>OMBAR</i> , 55 , 87–387.	60
Lucrezi, S. & Schlacher, T.A. 2014. The ecology of ghost crabs. <i>OMBAR</i> , 52 , 201–256.	60
Bright, M. & Lallier, F.H. 2010. The biology of vestimentiferan tubeworms. <i>OMBAR</i> , 48 , 213–266.	60
Benjamins, S., Dale, A.C., Hastie, G., Waggitt, J.J., Lea, M.A., Scott, B. & Wilson, B. 2015. Confusion reigns? A review of marine megafauna interactions with tidal-stream environments. <i>OMBAR</i> , 53 , 1–54.	58

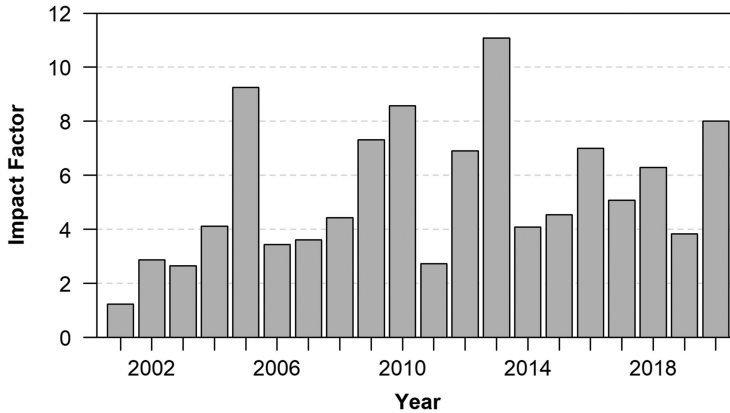


Figure 2 *Oceanography and Marine Biology: An Annual Review*: Clarivate's impact factor.

in 2020. Impact factors paint only a partial picture of the value of OMBAR, with reviews continuing to be read and cited for many years with long citation half-lives (OMBAR >10 years).

OMBAR: an evolution through time

Publishing and retrieval of information has changed greatly in the 60 years of *Oceanography and Marine Biology: An Annual Review* (OMBAR), and especially so in the 45 plus years that the current editor-in-chief (SJH) has been researching marine biology.

When SJH started as a research student in 1976, keeping up with the literature involved visiting the library at the Marine Biological Station in Port Erin, UK, on Friday afternoons (except when doing fieldwork), scanning any new journal issues arriving on the shelves that week, writing down the publication on a reference card, reading it and sometimes making a few notes on the back of the card. The references cited in the back of relevant papers were also looked at and more cards filled out, and if not in the Port Erin library nor available via the main library at the University of Liverpool, requests were made from inter-library loans via the British Library. These would arrive two to three weeks later as photocopies. It was too expensive and time-consuming to photocopy any articles of interest on the shelves as each page had to be individually copied with two pages costing around the same as a half pint of beer at the time (10–12 pence then, >£1.75 now) and was strongly discouraged.

Getting to grips with the wider literature and concepts as a new graduate student in the 1960s and 1970s involved first reading more advanced textbooks, then specialist books and research monographs, edited volumes with chapters by invited experts, and then proceeding to reading review articles by experts in the field, as well as in parallel reading of individual journal articles. Reviews were extremely important as they attempted to cover the literature comprehensively as well as synthesising it. If they were good reviews, new directions and research gaps would be identified. Most importantly, the references cited provided an integration of the field up to about one year or so before publication. The gold standards in marine biology at the time were *Advances in Marine Biology* and its rival *Oceanography and Marine Biology: An Annual Review*. In the wider field of ecology and evolution *Annual Review of Ecology, Evolution and Systematics* was excellent, with *Biological Reviews* providing a broader view of biological sciences. Trends journals were yet to emerge and proliferate. When SJH wrote his PhD thesis and subsequent papers from it, several reviews were highly influential on his thinking (Southward 1958 in *Biological Reviews*; Southward 1964 in special issue on grazing from a British Ecological Society Symposium; Connell 1972 in *AREES*; Underwood 1979 in *Advances in Marine Biology*) including two in OMBAR (Lewis 1976

and Branch 1981), plus of course Lewis (1964) – the most comprehensive book on British and Irish rocky shores. Several early seminal papers on experimental ecology on rocky shores published in *Ecological Monographs* (Dayton 1971, Menge 1976, Lubchenco & Menge 1978) also had comprehensive introductions which greatly helped. Fortunately, the volume of literature in SJH's field of rocky shore ecology was not huge historically, making it possible to keep on top of new publications and to actually read nearly all of them from end to end. Thus, greater scholarship was possible, but often with a lag phase of a year or two given the time from submission to print publication.

SJH's first paid job in December 1979 was as a Research Fellow at the Marine Biological Association of the UK (MBA) in Plymouth. The National Marine Biological Library (NMBL), located at Citadel Hill within the MBA building, was well funded by the Natural Environment Research Council and represented at the time (and still to this day) a huge national and international resource, which is also much valued by the members of the Association. The NMBL was an abstracting hub for Aquatic Science and Fisheries Abstracts (ASFA). In the 1970s, a literature search involved using hardcopy abstracting volumes such as Zoological Record, Current Contents and ASFA. As a new scientist at the MBA, SJH was introduced to one of the 'information scientists' who ascertained his research interests, and every week a neat stack of reference cards magically appeared on SJH's office desk (no one locked offices in those days). SJH's visits to the library became much more focused, but probably missed out on more whimsical tangential reading on other topics that sometimes happened when browsing the contents page of journals.

SJH's active links with OMBAR (apart from perusing the volumes as a PhD student) started in 1981, when George Russell was approached by Margaret Barnes to write a review on grazing on seaweeds for OMBAR. George had helped SJH's algal identifications and advised on seaweed ecology during his PhD and was aware of his work on grazing, and thus suggested that SJH would be better placed to write such a review. Hence, SJH embarked on this review on grazing with his PhD supervisor, Richard Hartnoll, which is still cited (Hawkins & Hartnoll 1983, see Table 1). Margaret Barnes was an excellent editor, and SJH learnt much from the exceedingly detailed neatly handwritten edits of the submitted typescript. Adjectival nouns have been largely avoided since her feedback. Much of the grazing review was done at the NMBL during research visits to Plymouth while on vacations from the University of Manchester where he was then based. He also liaised with Alan Varley, a pioneering Head Librarian of the NMBL, in using a computer-based search of the literature using keywords – the output arriving on teleprinter paper 40 cm wide with holes down the side (also known as 'tractor paper'). This was state-of-the-art information retrieval at the time.

Throughout his career, OMBAR would remain a constant resource for SJH and his PhD students, especially when preparing lectures on subjects away from his immediate research interests or stumbling into new fields. Having retired from university administration at the beginning of 2016, SJH took on the editor-in-chief role at OMBAR from volume 55 at the request of Roger Hughes. SJH intends to step down in a phased manner over the next year or so, working with two new co-editors-in-chief from the existing board.

OMBAR: current and future contribution

Information technology and bibliometric approaches exploded in the 1980s and 1990s. Abstract journals initially started issuing searchable CDs and then swiftly moved online as the Internet took off. Journals moved to hybrid print and online publication, with online-only journals beginning to appear about 10–15 years ago. Nowadays, many traditional print journals have switched to online-only. Reprints have become obsolete as PDFs have emerged. The literature can now be searched using bespoke platforms such as Web of Science, Scopus, PubMed or Google Scholar. A quick Google search on a smartphone can deliver a literature search in a few moments that once required a trained information scientist and a mainframe computer occupying a dedicated large building. OMBAR publications are easily found on these platforms or using these search engines. To keep

with the times, OMBAR has had to adapt. While the volumes remain printed, as per tradition, all volumes and their contents are listed online, and some of the publications are downloadable directly from the Internet (those that are Open Access – discussed further below).

So, is there still a place, and a need, for annual volumes of reviews 60 years on from the first publication of OMBAR? And, if so, how can OMBAR keep up with the ever-evolving field of scientific reviews?

There certainly is a need – and both the contributing authors' and the readers' benefit. In some academic settings, reviews have sadly become downplayed. The UK's Research Assessment Exercise and its successor the Research Excellence Framework certainly discourage reviews in both the physical and biological sciences, as they are not considered to be reports on individual pieces of new research. Reviews do still count if new ground or concepts are developed and meta-analytical and systematic review approaches are adopted – but it is a risk that scientists do not want to take when submitting their best outputs for assessment. Fortunately, synthetic and synoptic reviews are still valued in some research cultures where periodic assessments are made (e.g. Australia and New Zealand). Authors who write reviews generally benefit from the necessity to carefully read and digest the literature. Certainly, SJH spent the 20 years or so following his 1983 grazing review working on topics identified as gaps – including the role of biofilms, the importance of mucus, behaviour of grazers and the need for broad-scale geographic comparisons using replicated experiments.

The format and content of reviews have also changed with new literature searching and cataloguing technologies, and the ability to deposit appendix material in online supplementary files such as large tables, videos or interactive maps and figures. The intellectual rigour of reviews has also greatly improved, with the increasing demand for robust, reliable, transparent and repeatable reviews from the academic community. There has been a clear spread in recent years of Cochrane-style systematic reviews pioneered in medicine and infused into other academic disciplines, such as environmental science and biodiversity conservation. Statistical syntheses through meta-analyses are now routinely used to complement systematic reviews as well as other more traditional reviews – although their quality can vary and there is a general need for consistency in methodology when it comes to systematic syntheses (Haddaway & Macura 2018, Haddaway et al. 2020, Christie et al. 2021). Re-analysis and reuse of freely available data are now commonplace. Good systematic work will also allow the identification of research clusters and research gaps, which can then inspire researchers to write further reviews and/or undertake new research. Bibliometric techniques can also be used to trace the development of a field. Workshops are convened to explore particular topics and often lead to reports that can be subsequently condensed into agenda-setting reviews (Wolfe et al. 2020 in Vol. 58).

Postgraduate student training has become more formalised, and in many countries, a formal literature review has become a key part of the process. Some recent reviews in OMBAR fall into that category (Chen et al. 2021 in Vol. 59; Martinez et al. 2017 in Vol. 55; and Veenhof et al. 2022 and Leeuwis & Gamperl 2022 – both in this volume), but when approached by younger authors, the editorial team usually advise involvement of a senior colleague with a broad view of the field. Recently, retired scientists often with no or limited access to funding or laboratories, but usually with a good amount of free time on their hands, often write valuable reviews drawing on years of expertise. When approached by such prospective authors, the editorial team often advise involving a younger colleague to ensure an up-to-date approach. Such reviews can also give a strong feel for the historical foundations of a particular subject area. In this regard, OMBAR has recently been pleased to publish reviews on seminal scientific activities such as the Great Barrier Reef expedition of the 1920s (Spencer et al. 2021 in Vol. 59). Most reviews these days have more than a sole author, but there have been some recent excellent exceptions published in OMBAR (Peck 2018 (see Table 2),

McQuaid 2018, both in Vol. 56). There are also some where authorship is much greater and diverse, reflecting a multidisciplinary work stemming from a workshop (Morris et al. 2019).

The days when Harold or Margaret Barnes could single-handedly edit the volume and give scientific criticism akin to refereeing are gone. Now, the editor-in-chief reads a penultimate draft of the review before final submission, which is then refereed usually by two external referees plus expert input from one of our team of associate editors. We hope these steps have raised the quality of the published reviews, by constructive formative criticism and advice.

From the publishers' (Taylor and Francis) perspective, OMBAR forms an important part of CRC Press marine science portfolio by enabling in-depth annual reviews. As mentioned above, more recently, it has been possible to publish a mix of traditional subscription-only papers and Open Access articles in each volume, allowing authors yet another level of flexibility. Take-up of the Open Access option has increased in the last five years allowing access to OMBAR articles by a wider readership.

In its 60th year, the Editorial Board has been expanded to broaden its discipline base, have a global outlook and embrace a greater diversity of ages, locations and genders. Looking forward to the next few years, OMBAR will retain and expand on its large and diverse editorial board drawn from across the world and from a variety of research fields, especially reaching out to the physical and chemical oceanographic sciences. It will continue to publish its traditional longer monographic reviews, but will also welcome short reviews. Contributions which can also include new data (which can be especially important to give a long-term view by building on past studies), papers on historical ecology and on the historical development of the field up to its present cutting edge, as well as Cochrane-style systematic reviews and meta-analyses are all encouraged. It will also welcome brief opinion pieces and mini-review articles on emerging topics, from time to time drawing on its editorial board for these. Manuscripts, both invited by the editorial board and unsolicited works submitted by the marine science community, will be considered for publication. All articles will continue to be peer-reviewed (OMBAR publications have been peer-reviewed from Vol. 55 onwards), and also edited by one of the board with appropriate expertise.

We hope that Harold and Margaret Barnes would have approved of these developments. After an editorial on the challenges set by the UN Decade of Ocean Science for Sustainable Development, the first review in the present volume is a tribute to Margaret Barnes by Cruz et al. revisiting her comprehensive 1996 review of the biology of the stalked barnacle *Pollicipes* in OMBAR. Then follows a series of reviews: one by Claassens et al. (2022) which covers the diversity, distribution, ecology and conservation of Syngnathidae in Africa, one on hotspots of Cenozoic tropical marine biodiversity by Yasuhara et al. (2022), a review discussing blue carbon ecosystems in Sri Lanka by Gorman et al. (2022), a review of kelp gametophyte ecology by Veenhof et al. (2022), one systematically reviewing the use of stable isotopes for coral reef studies by Skinner et al. (2022), a review of echinoderm larval settlement by Doll et al. (2022), one presenting the relationship between boxer crabs and sea anemones by Schnytzer et al. (2022), a topical review of marine litter and microplastics in the Indian Ocean by Honorato-Zimmer et al. (2022), one discussing the deep source-sink hypothesis by Mercier et al. (2022) and finally a review of adaptations and responses of marine animals to the high intertidal zone by Leeuwis & Gamperl (2022).

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