THE GOOD, THE MUDDLE AND THE PREDATORY: 
OPEN ACCESS JOURNALS IN MARINE & AQUATIC SCIENCES

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Abstract:
As the options for open access publishing increase, scientists and students are a bit befuddled by the choices and the costs. Librarians are being asked difficult questions: Is this an okay journal in which to publish? Is the editorial board reputable? How much is this going to cost? Is it worth it? While compiling our biannual review of journals in marine science and technology for Magazines for Libraries, we explored the current options. These are described here as “the good, the muddle and the predatory.” Our intent is to provide a brief primer for librarians to use when asked questions about open access publishing.

Keywords: Open access, collection development, journals, scholarly publishing, librarians.

Introduction
We have collaborated for years on a variety of projects. Every two years, we update the marine science and technology section of Magazines for Libraries, a reference resource for libraries selecting or assessing journals for their collections. Every time we do it, we try to find a new angle rather than just reviewing our recommended titles, their coverage, audience and pricing. For the 23rd edition, we decided to look more closely at open access (OA) options.

This paper builds on that work. We felt that IAMSLIC members could use more background on OA options when working with authors in their institutions. As we worked through the options, the journals did not fall into “the good, the bad and the ugly.” Our thinking was challenged with many policies and choices being confusing, so that the journals seem to be “the good, the muddle and the predatory.”
Methodology
We selected titles from our master list of journals as examples of the variety of approaches to OA within the marine and aquatic sciences (Butler & Webster, 2011). We selected titles that demonstrated the range of options as well as representing a solid sample of the publishers involved with the field. Once the titles were selected, we examined the journal’s policy and guidelines concerning OA. Additionally, we explored current conversations in the scholarly publishing environment concerning OA. We also identified new titles that were not on the master list, but were examples of different approaches to OA.

Definitions of Open Access:
The classic definition of OA is that the information is digital, available online (not just on one person’s computer), free of charge and free of most copyright and licensing restrictions (Suber, 2004, revised 2013). There are aspects of OA that on the surface seem simple, but have many nuances.

The Green OA option allows an author to archive his or her article. That can happen in a variety of spaces (e.g. institutional repositories, subject repositories, personal web pages) and in a range of versions. What version can be deposited varies by publisher and journal. These versions include:

- A pre-print: The manuscript prior to any review and copyediting. (Consequently, the final published version can be quite different with errors corrected, statistics clarified and writing strengthened.)
- A post-print: The manuscript has gone through the review process but not final editing. That said, not everyone agrees on what is a post-print. InterResearch describes it clearly — “the author-generated version of the manuscript accepted for publication and sent to the publisher for production (i.e. includes the corrections made during peer review, but excludes corrections and enhancements made by the publisher’s sub-editors, copy-editors, graphic designers, and web-services” (Kinne, n.d.).
- The Version of Record: The published article.

Gold OA implies that the access is through the publisher. It comes in several shades as well. All provide free access to the reader, but many charge the author or have other restrictions. The types of Gold OA include:

- Direct: These are the journals that are completely open from start to finish. Society and Ecology (http://www.ecologyandsociety.org/) is an example.
- Delayed: Free access is open after a certain period. Marine Ecology Progress Series (http://www.int-res.com/journals/meps/meps-home/) is an example.
- Hybrid: These are selectively open; some articles are accessible because the authors paid a surcharge or the editors decided that an article needed to be accessible given its subject and reader demand.

The Changing Environment of Scholarly Communication
Open access to scientific information appears to be growing. Bjork et al. used articles published in 2008 to assess the availability of a random sample of primarily science scholarly articles (Bjork et al., 2010). They found that 20.4% of scholarly journals were available (8.5% as Gold OA and 11.9% as Green). In 2013, Khabsa and Giles estimated that 24% of scholarly journals were open. Some disciplines were higher than others (Khabsa & Giles, 2014). Chen makes the case through his research that 50% of science journal articles are open as of 2014 (Chen, 2014). Some suggest that this trend
might slow as authors question publishing charges and scholarly publishers assess option and funding shifts (Rizor & Holley, 2014; Solomon & Björk, 2012; Van Rooyen & TBI Communications, 2014).

Authors in our institutions, whether students, young scientists or established managers, are trying to understand the options and the implications of where they choose to publish. New journals emerge; publisher policies change; and universities and funding agencies require access. Authors wonder if they should respond to the stream of requests to be editors of or submit papers to journals that are new and unfamiliar. They want to know why they have to pay to make an article open. They puzzle over copyright transfer agreements. Librarians are still paying a lot for journal subscriptions and face annual increases. Open access is a “comprehensive source of human knowledge and cultural heritage that has been approved by the scientific community” (Conference on Open Access to Knowledge in the Sciences and Humanities, 2003). Since the 2003 Berlin Declaration was signed, OA has added a level of complexity to the scholarly communication environment as well as being a powerful mechanism for change.

This is where we get into the differences in types of OA, and start to describe the good, the muddle and the predatory publishers and their journals. Most seem to fall into the muddle category; they are not completely open with no author payment or a reasonable one that is clearly outlined in the author instructions. Sometimes the OA comes with a delay or is spotty. Examples help to describe the situation.

The Good
Few journals are completely open with no author charges or subscription fees for libraries or readers. The few in marine and aquatic science that are truly open are subsidized. These would be considered “The Good” if only considering the purest definition of OA.

- *Scientia Marina* has been published since 1955 with funding from the Institut Ciencies del Mar in Barcelona. It uses the Open Journal System ([https://pkp.sfu.ca/ojs/](https://pkp.sfu.ca/ojs/)) for submissions, reviewing, editing and production. All content is accessible including forthcoming articles.
- *Knowledge and Management of Aquatic Ecosystems*, published by EDP, is sponsored by the French National Agency for Water and Aquatic Environments. There are no author charges, its copyright transfer agreement is reasonable and all content is freely available.
- *Journal of Marine Animals & Their Ecology* is a volunteer effort. So, while not timely, it is freely available and very focused on rescue and rehabilitation of marine life - the interests of the volunteers that produce it.
- *Fishery Bulletin*, a US government publication, is in the public domain under the copyright law of the United States. The government covers the cost of editing, publishing and distributing with U.S. government employees doing this as part of their work.

The Muddle
Many journals, if not most in our field, are in ‘The Muddle.” Many are both Green (e.g. allowing depositing by the authors into a repository) as well as Gold (e.g. having a mechanism for the author to make an article immediately open). These three are examples of the variety of approaches to OA.

- *Botanica Marina* allows archiving of the post-print after 12 months.
- *Canadian Journal of Fisheries & Aquatic Science* allows posting of the pre-print after being submitted or accepted. For $3000 USD, an author can purchase immediate OA through NRC’s OpenArticle program.
• Biological Bulletin does not allow posting to a repository; however all content becomes freely accessible after 12 months. Also the annual June Symposium issue is immediately OA.

Each major publisher has a different approach to providing Gold OA. All involve author charges and these vary from as high as $3000 USD (NRC’s OpenArticle and Springer’s OpenChoice) to ASLO’s $350 USD for immediate OA in Limnology & Oceanography. Inter-Research, publisher of Marine Ecology Progress Series, has a Gold option that depends on whether the author grants exclusive or non-exclusive copyright and the price varies depending on length of the article. The burden of Gold OA rests on the authors and how much they can pay. Their article processing charges should be weighed against library subscription rates to assess whether Gold OA is worth the price.

The publishers also vary in their policies toward Green OA. Elsevier allows archiving of pre or post print, but not the Version of Record. Authors publishing with Oxford University Press may deposit a pre-print anytime but must wait 12 months after online publishing to deposit a post-print. Springer requires authors to wait 12 months before depositing a pre- or post- print. There is even variation within a publisher’s suite of journals. Again, the author needs to investigate the Green OA options as they are not consistent.

The Predatory, or Not
While established publishers may be inconsistent and confusing with their policies, they are not overtly predatory. The truly predatory are attempting to profit from the competitive publishing environment and the pressure on authors to publish. Occasionally, we see new journals that imitate existing ones in an attempt to deceive authors. A non-marine science example is the Jökull: Journal of Earth Sciences (http://jokulljournal.is/) that has been published by the Iceland Glaciological Society and Geoscience Society of Iceland since 1950 versus Jökull: The Iceland Journal of Life Science (http://jokulljournal.com/), an imposter (Beall, 2013a). This is an extreme case of predatory publishing. Others lack quality control. They use email spamming to recruit editors and authors. There is little editorial oversight or copy editing. The review process is often limited.

Jeffrey Beall, a scholarly communication librarian at the University of Colorado Denver, has taken it upon himself to keep lists of predatory publishers and lists as well as to actively investigate the topic (Beall, 2013b). He concedes that it is not always easy to tell. Open Journal of Marine Science, published by Scientific Research, prominently posts the OA logo on its website. The page charges are not outrageous ($800 USD/10 pages + $50 USD per page for additional pages); the limited reviewing and copyediting is fast (four weeks). The very profitable Hindawi publishes a large suite of OA Gold journals including Journal of Marine Biology The article processing charge is $600 USD and reviewing is speedy. However, there is no editor-in-chief so reviewing is shared while final decisions rests with an assigned editor. Does profitability mean a publisher is predatory, though? International Journal of Marine Biology also does not have an editorial board but relies on a network of reviewers. The article processing charge is $1100 USD. The Sophia Publishing Group produces nearly 100 peer-reviewed online journals and 100 new books annually in print and online.

Frontiers in Marine Science is a new title that has been aggressive in recruiting authors and editors. The Frontiers series of 45 journals is an endeavor started by scientists from the Swiss Federal Institute of Technology. There is a complex article processing charge schedule. They are experimenting with a more open review process that involves an internal review and then an interactive one. An added twist is that the Nature Publishing Group has purchased an interest in this suite of OA journals, perhaps signaling perceived potential for profit in a new sector.
“Predatory” journals are the “new kids on the block.” Their operations are new so it is hard to gauge the quality and the value. However, authors need to be wary of identity theft, high article processing charges, lack of quality control and false claims (e.g. undeserved impact factors).

Advice to Authors and Librarians
Beall offers sound, yet complex, advice to authors investigating OA journals (Beall, 2012). The Open Access Scholarly Publishers Association has a code of conduct that provides an excellent means of assessing publishers and their products (Open Access Scholarly Publishers Association, 2014). It comes down to common sense and taking time to learn about a journal.

- The publisher and journal information should be very obvious.
- There must be some kind of peer-review process.
- Editorial boards should have experts in the field.
- Fees and page charges must be clearly stated and easy to understand.
- Direct marketing should be appropriate and unobtrusive.
- Licensing should be clearly stated and visible.
- Instructions to authors should be available.
- The website should demonstrate a level of professionalism.

Authors have responsibilities that are made more challenging with the OA options. They should think about their appropriate audience and what is the best outlet to reach that audience. Expediency can be a trap where speedy publication is promised but quality suffers from lack of adequate review and copyediting. Authors also need to understand their copyrights, rather than simply sign copyright transfer agreements. This is particularly important if these authors have requirements under university OA policies, government regulations or funder requirements.

Open Access is complicated and even messy. There are people trying to make money from the hard work of others. There are scientists who want quick recognition for not very sound work. Even so, OA is a significant change in improving access to scientific information throughout the world and in helping change the way authors work. In 2010, the Study of Open Access Publishing Project undertook a large scale survey of international scientists to learn about their attitudes and experiences with OA publishing (Dallmeier-Tiessen et al., 2011). Most of the published scientists surveyed (89%) considered OA publishing beneficial to their discipline, but few actually publish in OA journals. When queried further on the most important criteria for choosing to publish in OA journals, those scientists point to freely available content, the quality and prestige of the journal and no charges. They do not want to pay to publish.

Publishing costs money and someone pays. There must be shared responsibility for the cost of scholarly communication among the publishers, the authors, their institutions and the libraries. New models are being tested. PlosOne gives discounts to authors if their institutions have a membership. PeerJ has an author membership model where authors can publish one to unlimited publications depending on the level of membership. eLife is an example of funding organizations (Howard Hughes Medical, Wellcome Trust and Max Planck Society) developing and paying for a publishing platform to encourage early career scientists in the life sciences and biomedicine. While not marine or aquatic specific, PeerJ and PlosOne may be useful outlets for authors at our institutions.
Rather than raging about journal prices or trumpeting the supposed panacea of OA, we need to engage in the complex evolution of scholarly communication and be honest that we must share the cost. One element is being comfortable talking about the different types of OA:

- Green – depositing into a repository, usually a pre or post print, not the Version of Record – the published copy.
- Gold – freely accessible through the publisher, whether directly open, author-pays, institution/library pays, or delayed.

We can keep track of what titles are emerging and be ready to offer advice on how to assess new journals. We can help promote the ‘good’ journals, even if they are not the most prestigious. We can even consider if IAMSLIC should start a journal or help others do so.

Science is built on the work of those who came before. This is why libraries exist: we facilitate the preservation, management and sharing of information. Open access is one way to do the later. We need to help our scientists and students develop their approaches to communicating their work to colleagues and a broader audience. Open is not necessarily good. It can be a muddle or predatory. Learning to define the nuances and the best options is our challenge.

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