

[A Review of MegaJournals](#)

October 17, 2016



BACKGROUND

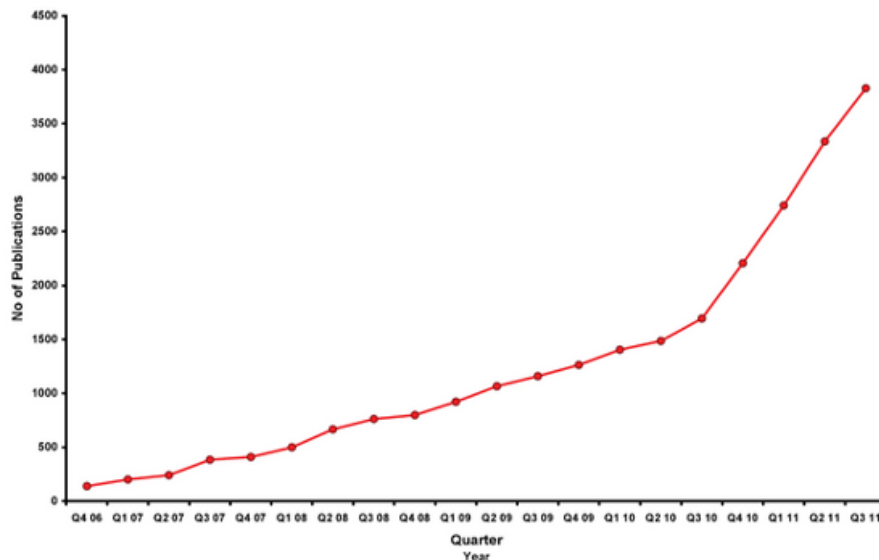
One issue that I've been following for a number of years is so called MegaJournals.

[Mega journal as defined on Wikipedia.](#)

Cue '[Open Access and The Dramatic Growth of PLoS ONE](#)' which I wrote for the **figshare** blog back in 2012. (As you will see, PLOS ONE started publishing papers in 2006).

The concept of OA "Megajournals" appears to have started around June 2011 as per [this post](#) by Mark Patterson (at that time with PLOS, now with [eLife](#)):

"Remarkably, PLoS ONE became the largest peer-reviewed journal in existence inside four years (and will publish as much as 1.5% of the articles indexed in PubMed in 2011), and over the past 12 months has been emulated by many other established publishers in various disciplines".



[doi:10.1371/journal.pbio.1001235.g001](https://doi.org/10.1371/journal.pbio.1001235.g001)

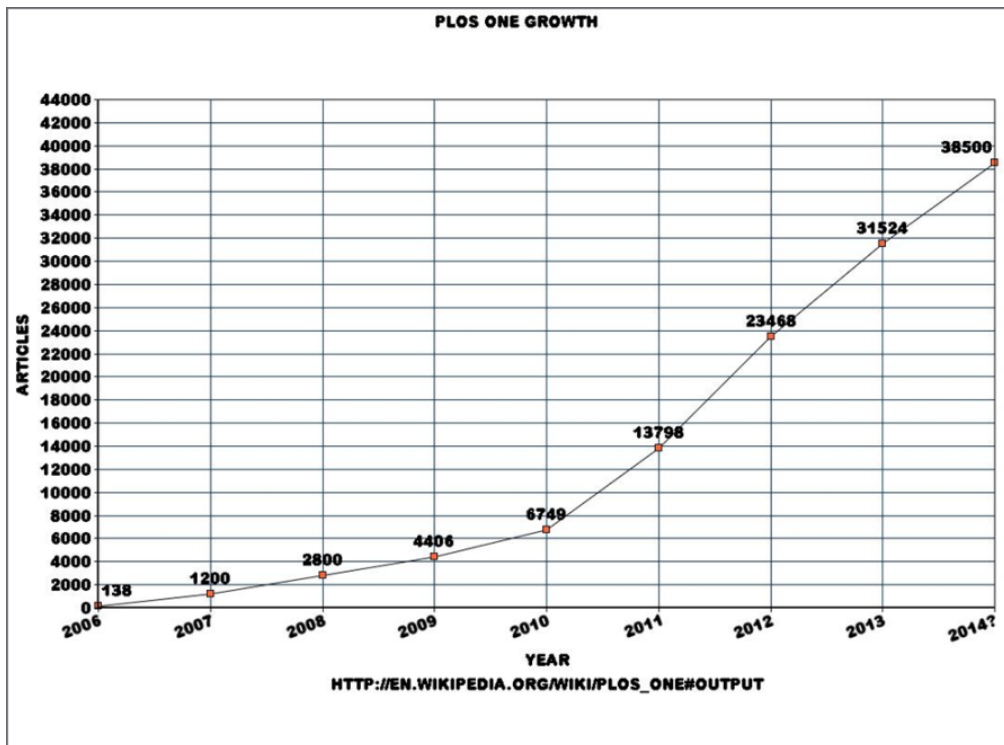
A large part of the reason for the spike in the dramatic rise since Q1 & Q2 2011 is the fact that that was the time that PLoS ONE, received [its first Impact Factor](#). That opened the floodgates in a big way (e.g. China) and it can clearly be seen from above that this fact has led to a significant effect.

Around the same time, Frank Norman posted a more broader and detailed post [Megajournals](#) which indeed was the conduit to my own post.

The trend towards Open Access has catalysed the creation of many new journals and new publishers. BioMedCentral, established in 2000, was a pioneer of open access publishing, launching a large number of journals. Public Library of Science (PLOS) initially established a small number of high-level journals, then in 2006 it launched PLoS ONE. This was the first of a new kind of journal, later dubbed mega-journal. PLoS ONE aimed to publish any article that met the test of scientific rigour, and eschewed any measure of importance or impact in its editorial and peer review process. In 2010, PLoS ONE published 6,749 articles, making it the largest journal in the world (by volume). Its success helped to persuade the mainstream publishing industry that fee-paid open access was a viable business model.

Recently I invited representatives from a number of open access publishers to discuss megajournals. Five of them gave presentations to an audience of scientists here, and one visited me subsequently to inform me about their operations.

I then revisited the output of PLOS ONE around a year later.

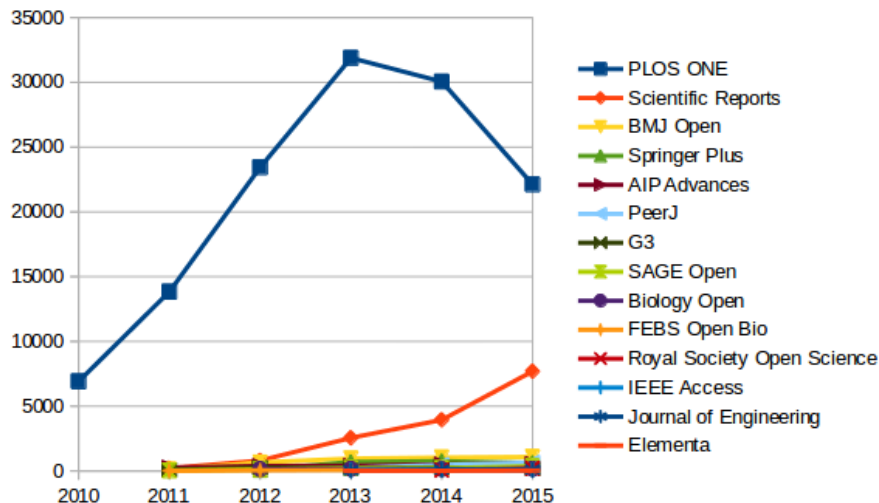


I was not alone in thinking that the exponential growth seemed unstoppable. With hindsight, such growth can equally be followed by exponential decay.

In May 2015, Mike Taylor posted [Have we reached Peak Megajournal?](#)

Bo-Christer Björk's (2015) [new paper in PeerJ](#) asks the question "Have the "mega-journals" reached the limits to growth?", and suggests that the answer may be yes. (Although, frustratingly, you can't tell from the abstract that this is the conclusion.)

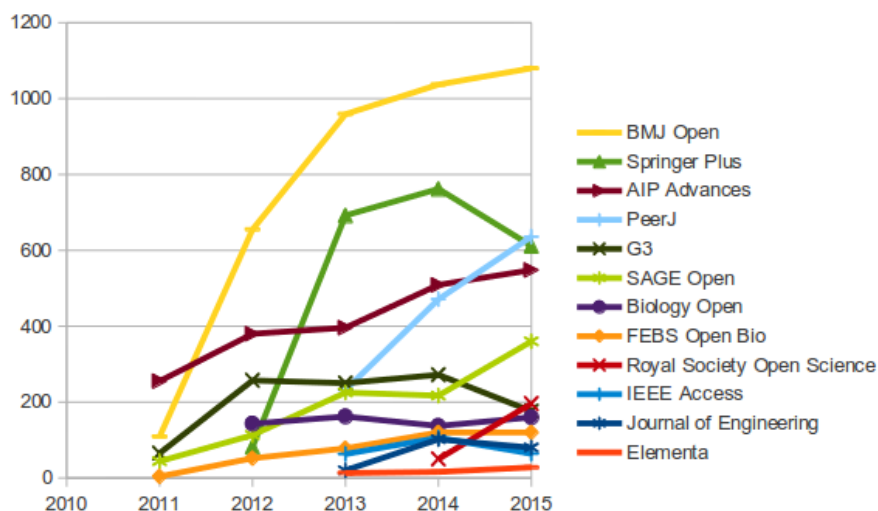
I was a bit disappointed that the paper didn't include a graph showing its conclusion, and [asked about this](#) (thanks to PeerJ's lightweight commenting system). Björk's response acknowledged that a graph would have been helpful, and invited me to go ahead and make one, since the underlying data is freely available. So using OpenOffice's cumbersome but adequate graphing facilities, I plotted the numbers from [Björk's table 3](#).



As we can see, the result for total megajournal publications upholds the conclusion that megajournals have peaked and started to decline. But PLOS ONE (the dark blue line) enormously dominates all the other megajournals, with Nature's Scientific Reports the only other publication to even be meaningfully visible on the graph. Since Scientific Reports seems to be still in the exponential phase of its growth and everything else is too low-volume to register, what we're really seeing here is just a decline in PLOS ONE volume.

It's interesting to think about what the fall-off in PLOS ONE volume means, but it's certainly not the same thing as megajournals having topped out.

What do we see when we expand the lower part of the graph by taking out PLOS ONE and Scientific Reports?

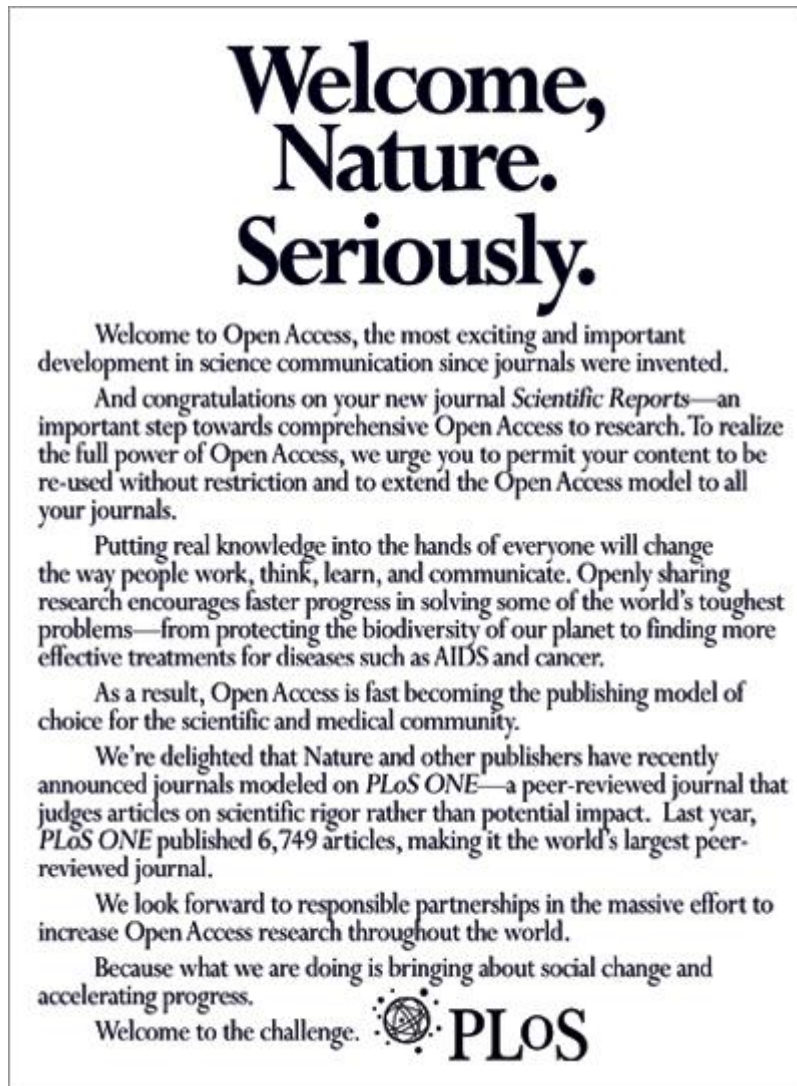


So the establishment of new megajournals is very much a good thing, and their growth is to be encouraged. Many of the newer megajournals may well find (and I hate to admit this) that their submission rates increase when they're handed their first impact factor, as happened with PLOS ONE.

Onward!

Touched upon in the posts by Norman and Taylor is [Scientific Reports](#) (SR). SR was launched in 2011 (with little fanfare) by Nature Publishing Group (now Springer Nature) and over the last couple of years has seen **significant growth**. Interestingly a few weeks after its launch, PLOS ran with the following post on their Official Blog:-

[Welcome, Nature. Seriously.](#)



We shall come back to SR shortly.

Whilst PLOS ONE has many supporters, it also has its critics, most notably, some of the individuals who blog for [The Scholarly Kitchen](#):-

[Is PLoS ONE Slowing Down?](#)

[The Rise and Fall of PLOS ONE's Impact Factor \(2012 = 3.730\)](#)

[PLOS ONE Output Falls Following Impact Factor Decline](#)

[PLOS ONE Output Falls 25 Percent](#)

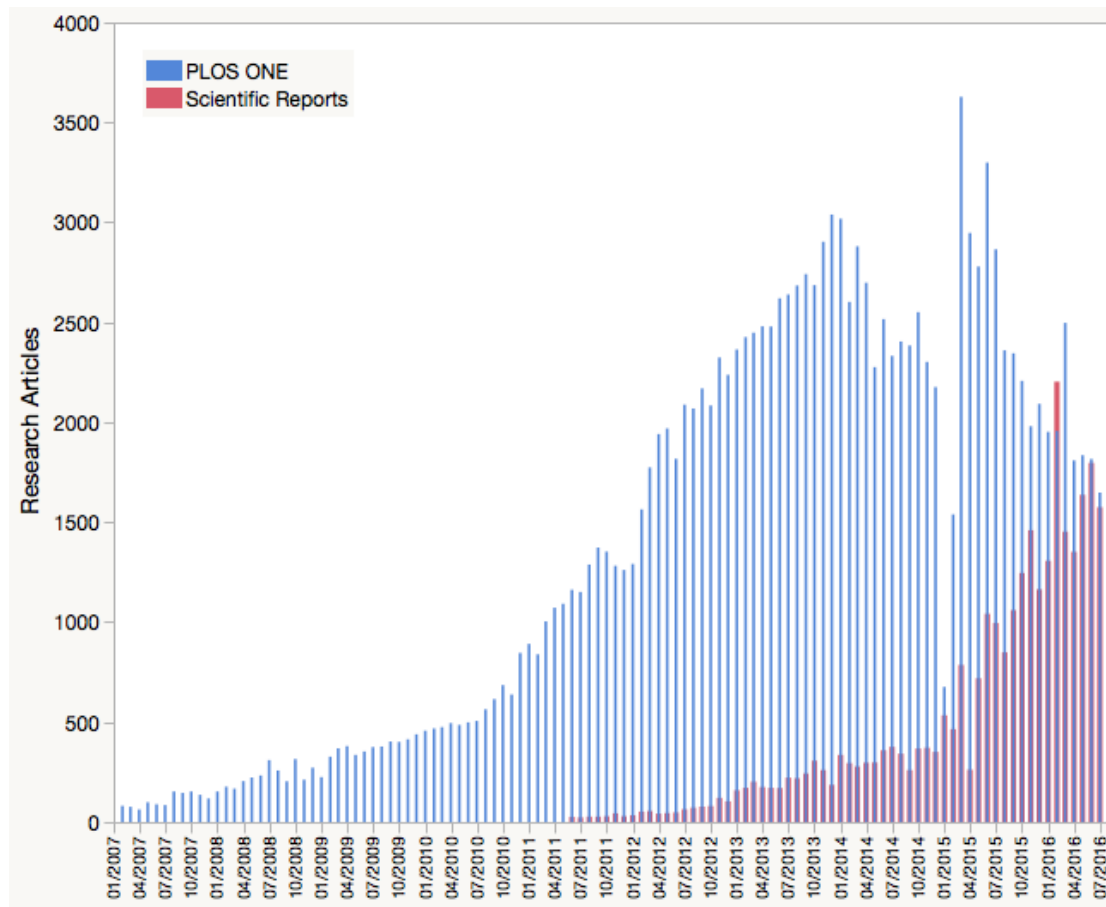
PLOS ONE Shrinks by 11 Percent

As PLOS ONE Shrinks, 2015 Impact Factor Expected to Rise

What is clear however was that in terms of output, this seemed to have peaked around 2013/2014 and has subsequently been in decline ever since.

In August 2016, Scholarly Kitchen ran with a post:-

Scientific Reports On Track To Become Largest Journal In The World



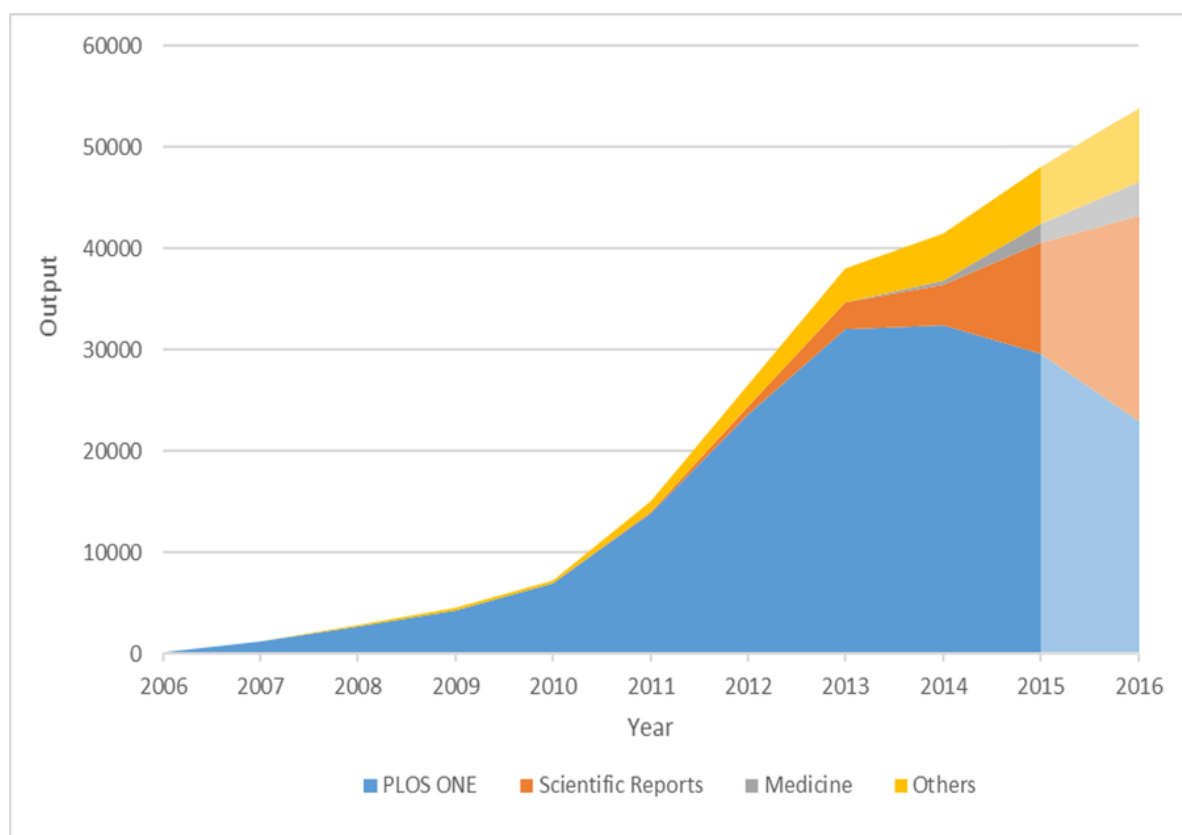
An unpredictable publication flow and revenue stream through APCs will have very different effects on the two publishers. Springer Nature has an enormous, diversified stable of journals and revenue streams, which allows them to play a long-term strategy game with Scientific Reports. Annual revenue fluctuations with one journal are not going to put Springer Nature in financial trouble. In contrast, PLOS' income is almost exclusively based on APC revenue, with [97% of their 2014 revenue coming from publication fees](#). More importantly, [91% of all 2015 papers published in PLOS journals were published in PLOS ONE](#), the remaining 9% split among six other journals. As revenue from PLOS ONE functions to subsidize the publication costs of these six other titles, downward pressure on PLOS ONE puts the entire organization at risk.

Over last weekend, I noted a very recent post on Times Higher Education:-

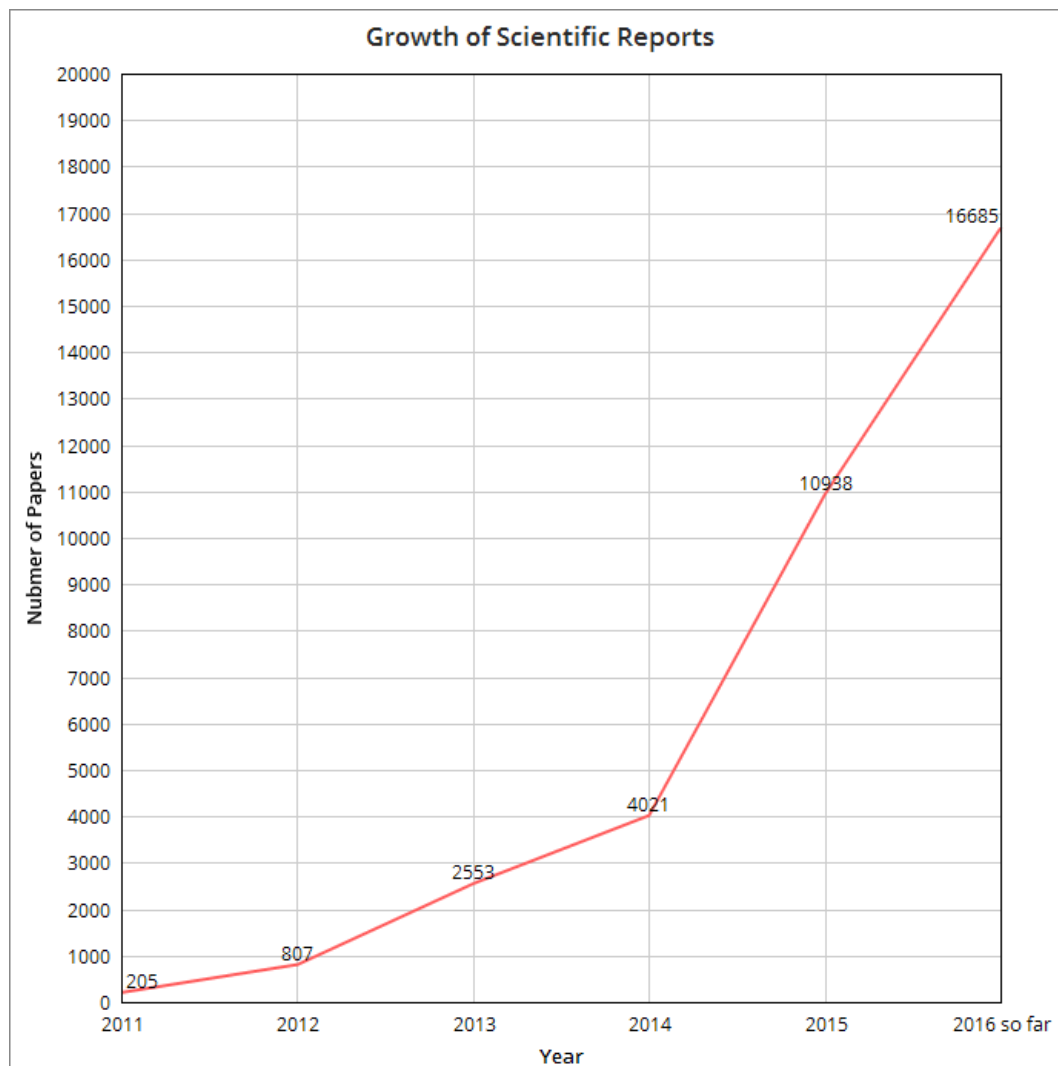
[Mega-journals: the future, a stepping stone to it or a leap into the abyss?](#)

Nature's new kid on the block is now the biggest journal in the world. But while such giants are currently overturning the world of scholarly publishing, their long-term future is unclear, says Stephen Pinfield.

In September, Plos One was overtaken. Nature's Scientific Reports published 1,940 research articles in that month, compared with Plos One's 1,756. The figures for August were 1,691 and 1,735, respectively. Scientific Reports has grown rapidly since its launch in 2011, a rise that has coincided with (some have suggested, partly contributed to) a decline in Plos One. Like Plos One, Scientific Reports publishes across STEM, although in reality, the former has more papers in health and life sciences and the latter in physical sciences.



Pinfield's projected figures for SR in 2016 are based on data from August and September 2016 **alone**. I then made the following graph based on data [from here](#) on SR.



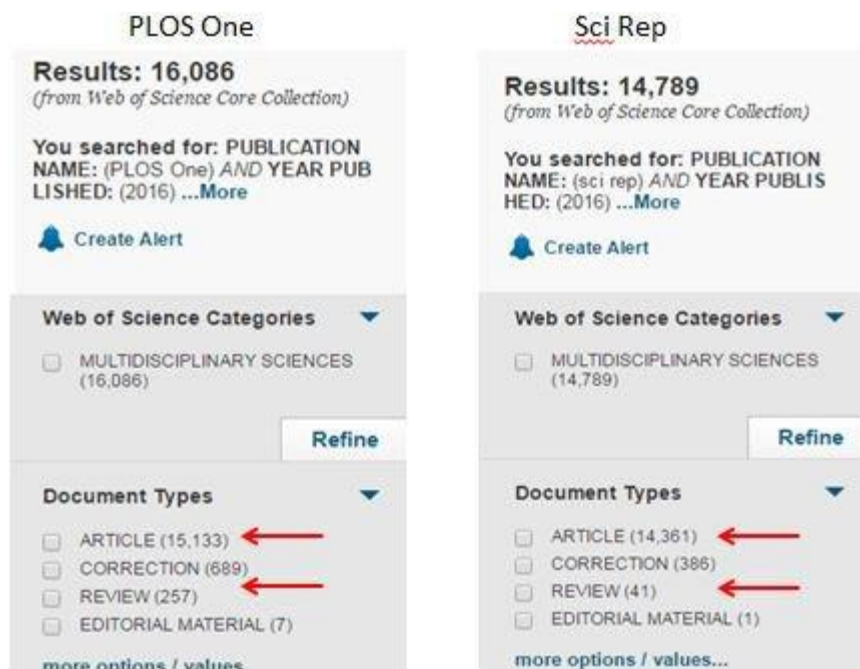
After I tweeted details of Pinfield's post and my own graph, things got rather interesting on Twitter. Here's some of what I saw.

[@McDawg @SciReports](#) Not Yet. Maybe in 2017 Sci Rep 14402 articles (as of Sep 28, 2016)
PLOS One 15390 articles (as of Sep 9, 2016) Source WOS

— Kamatlab (@KamatlabND) [October 16, 2016](#)

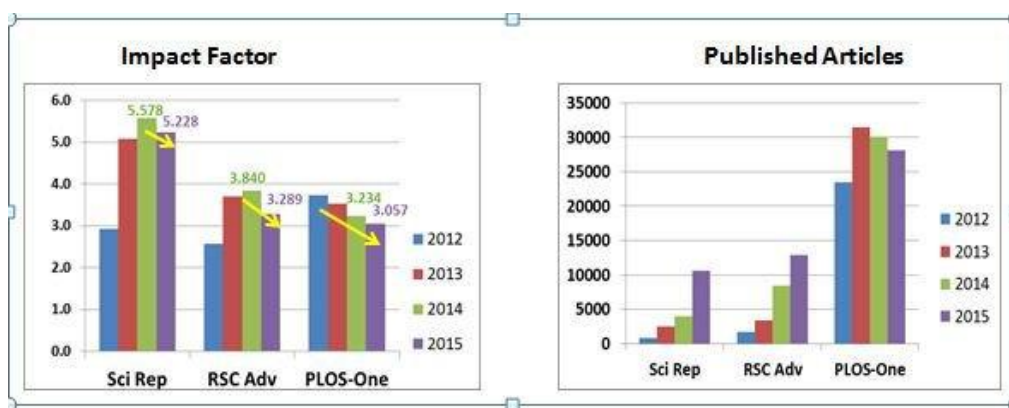
[@Protohedgehog @McDawg @SciReports @PLOSONE](#) Here is the screen shot of data.
pic.twitter.com/3WRN32olCd

— Kamatlab (@KamatlabND) [October 16, 2016](#)



[@McDawg](#) [@SciReports](#) A declining Impact Factor trend accompanies the growth of Mega Journals, [pic.twitter.com/5Z03wJDRKT](https://twitter.com/5Z03wJDRKT)

— Kamatlab (@KamatlabND) [October 16, 2016](#)



Assuming a very generous 50% APC fee waiver rate, that's still \$12 million in 2016 alone. <https://t.co/eyEizVcW2U>

— Alex Bond (@TheLabAndField) [October 16, 2016](#)

[@McDawg](#) [@Protohedgehog](#) Who publishes most in Mega Journals? Authors from China in [@SciReports](#) & [@RSC_Adv](#) & USA in [@PLOSOne](#) (Source WoS) [pic.twitter.com/QI3EeJZEKe](https://twitter.com/QI3EeJZEKe)

— Kamatlab (@KamatlabND) [October 16, 2016](#)

PLOS ONE			TOP 5 Countries (2016)			Sci Rep		
Field: Countries/Territories	Record Count	% of 16086	Field: Countries/Territories	Record Count	% of 16086	Field: Countries/Territories	Record Count	% of 14789
USA	4703	29.237 %	PEOPLES R CHINA	5547	37.508 %	PEOPLES R CHINA	5547	37.508 %
PEOPLES R CHINA	2579	16.033 %	USA	3701	25.025 %	USA	3701	25.025 %
ENGLAND	1356	8.430 %	JAPAN	1282	8.669 %	JAPAN	1282	8.669 %
GERMANY	1355	8.423 %	GERMANY	1175	7.945 %	GERMANY	1175	7.945 %
JAPAN	926	5.757 %	ENGLAND	1139	7.702 %	ENGLAND	1139	7.702 %

RSC Advances		
Field: Countries/Territories	Record Count	% of 9122
PEOPLES R CHINA	4666	51.151 %
INDIA	1401	15.358 %
USA	615	6.742 %
IRAN	415	4.549 %
SOUTH KOREA	412	4.517 %
JAPAN	300	3.289 %

[@Protohedgehog @McDawg](#) See editorial “Know the Difference: Scientific Publications versus Scientific Reports” <https://t.co/4ZdRdsJFxy>

— Kamatlab (@KamatlabND) [October 16, 2016](#)

[@Protohedgehog @McDawg](#) Also [@JBuriak](#) editorial Mega-Journals & Peer Review: Can Quality and Standards Survive? <https://t.co/joLVijd20a>

— Kamatlab (@KamatlabND) [October 16, 2016](#)

Cool. It's great that journals that don't use “significance” as an acceptance criteria are growing <https://t.co/KC5cL110hG>

— Alejandro Montenegro (@aemonten) [October 16, 2016](#)

[@Protohedgehog@McDawg@SciReports](#) it's called NATURE sp

— Rubén Rellán-Álvarez (@rrellanalvarez) [October 16, 2016](#)

In summary, based upon available data, SR certainly appears to be on track to become the largest Journal in the world overtaking PLOS ONE but possibly not until early next year.

On the other hand however, whether megajournals are growing or shrinking might be seen as irrelevant. Put another way, a key question worth thinking about is whether there is a growing proportion of papers published (including as preprints, an increasingly popular way of dissemination information rapidly and freely) without being judged on 'relevance' or 'expected citation potential' or 'perceived scientific quality', but just on the basis of some basic objective criteria, e.g. the detail of the description of materials and methods, statistical robustness and logic of the conclusion in view of the data, etc.

Such objective criteria can, of course, also be applied by journals not known as Mega Journals. See [Science \(which needs communication\) first, careers \(which need selectivity\) later](#), Velterop et al (2015).

I will conclude with the closing paragraph's from Pinfield's post:-

What remains to be seen is whether mega-journals, as currently constituted, will prove to be a major innovation that contribute to the reshaping of research publishing in an increasingly open access world, or whether their real importance will lie in being a stepping stone to even more radical forms of scholarly communication. This will partly depend on the extent to which the open access "wild animal" will be domesticated. Signs of that already abound, meaning that any change is more likely to be incremental rather than disruptive.

It is, of course, possible that mega-journals will sink without trace: that probably applies to some of the current smaller hopefuls. But there does now seem to be momentum behind some of larger titles, which means they, at least, are likely to continue to prosper. In the short term, though, what is clear is that the battle to publish the largest journal in the world seems to be swinging towards a new form of a very old journal, Nature.

Stephen Pinfield is professor of information services management at the [University of Sheffield](#). He is currently principal investigator on an AHRC-funded [project](#) investigating mega-journals and the future of scholarly communication.