

# The Royal Society of New Zealand's journals: how can they cope with the changing serials environment?

This paper reports a consultancy project undertaken in September 2003 for the New Zealand Government, which studied the government-subsidized journal publishing operations of the Royal Society of New Zealand (RSNZ) and made recommendations for changes that the RSNZ might make to improve the effectiveness of this operation. As well as minor operational improvements, the report also recommended consideration of larger changes, including open access, use of aggregators, and a change of the printed versions from quarterlies to annual archival editions.



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## Introduction

The Royal Society of New Zealand (RSNZ) is the premier learned society in New Zealand, having been founded (as The New Zealand Institute) in 1867. It is the *de facto* national academy of sciences. The *Journal of the Royal Society of New Zealand* (JRSNZ) has been published under various titles since 1869. Until 13 years ago it was the sole scholarly periodical published by the RSNZ.

In 1991, the New Zealand Government reorganized its support for scientific research. Until that time, the Department of Scientific and Industrial Research (DSIR) had directly operated a series of government research institutes, had funded scientific research in universities, and had itself published six quarterly journals, listed in Table 1. Their subject coverage is focused towards areas of research that are strong in New Zealand, and where distinctively New Zealand- (or Pacific- or Southern Hemisphere-) based information is likely to be produced. The Editors of these six DSIR journals were members of the scientific civil service, were scientifically qualified in the fields of their respective titles, and undertook their editorial duties full time.

A government department (the Ministry of Research, Science and Technology (MoRST), which

replaced the DSIR), oversees the entire system and reports to a cabinet minister. In New Zealand, many ministries are quite small, and each member of the Cabinet has several titles and several ministries reporting to him or her. The minister to whom MoRST currently reports is Peter Hodgson MP. Under this reorganization, the six journals published by DSIR were transferred to RSNZ, together with the staff responsible for them. The Government allocated NZ\$476,000 per year to the RSNZ for science and technology publications. Since 1996, however, a portion of this grant has been allocated to scientific educational materials

Name	Date founded
<i>New Zealand Journal of Agricultural Research</i>	1958
<i>New Zealand Journal of Botany</i>	1963
<i>New Zealand Journal of Crop and Horticultural Science</i>	1988
<i>New Zealand Journal of Geology and Geophysics</i>	1958
<i>New Zealand Journal of Marine and Freshwater Research</i>	1967
<i>New Zealand Journal of Zoology</i>	1974

Table 1. The six national science research journals of New Zealand, transferred in 1991 from the DSIR to the RSNZ

produced by the Society, the *Alpha* and *Gamma* series, and the amount available to support the scholarly journals has been NZ\$350,000 per year. The annual grant to the Society has remained fixed at NZ\$476,000 per year despite prevailing cost inflation. The RSNZ has had increasing difficulty in maintaining the journals with this level of government support, and the staff of the publishing operation has fallen from 10.0 to 6.2 full-time equivalents.

### Recent developments

Upon the takeover from the DSIR in 1991, the RSNZ introduced page charges for its journals, of NZ\$50 per page for New Zealand authors and US\$50 per page for overseas authors. However, the fee was waived if the author held, or took out, a personal subscription to the journal for the current year. As this was usually cheaper for the author than paying the page charge, most authors who were not current subscribers took out a subscription. This was a reasonable marketing tactic, as a proportion of these authors would continue to subscribe in subsequent years, and its consequences were that the page charges themselves raised little revenue but their imposition increased the journals' circulation.

The RSNZ journals have been technically progressive, and the journals have been typeset in-house using desk-top publishing software since the end of the DSIR period, over a decade ago. Since 1994 the RSNZ web site has provided the titles and abstracts of all the papers in its journals in HTML. In 1994, the previous Publishing Manager of the RSNZ, Dr Jaap Jasperse, created a CD-ROM version of the entire file of the full texts of the seven journals for 1993 together with abstracts of all issues prior to that date. He used this project as part of the basis of his own PhD thesis, which unusually for that time was itself also submitted as a CD-ROM.

Full texts in PDF format were provided from January 2002 onwards, free of charge to users for the first year while teething troubles were ironed out, with the introduction of subscription-only access from January 2003. For 2004 this remains the case. Subscriptions to the electronic journals are obtainable only from the publishers, as RSNZ does not participate in any aggregators' arrangements. However, two exclusive sales agents deal

with marketing, distribution and subscription fulfilment for the North American and European markets respectively; the RSNZ itself handles these functions for the New Zealand, Australian, Pacific and Asian markets.

The PDF file of each paper is provided to its author so that he or she can send digital copies on to colleagues; this is seen as the digital equivalent of the traditional offprint distribution, rather than as electronic publishing. The RSNZ would be unhappy at an author mounting this PDF on his or her own web site, or on that of their institution ('open archiving'), because of potential harm to subscription revenue if this practice became widespread. It is not clear whether such open archiving has occurred yet, or what effective action the RSNZ could take if it did. Permitting authors to send electronic copies to colleagues means that they will 'leak' out on to the Internet anyway.

There are two groups of subscriptions. Subscribers in New Zealand and Australia pay in NZ\$, and institutional, individual and RSNZ members' rates exist. Outside these two countries the rates are denominated in US\$, and there are institutional and individual rates. Electronic access is free with the print subscription in each case, though lower rates for electronic-only subscription without print are also available. If an institution subscribes, all members of that institution have unlimited free access to the electronic version. All seven journals (including *JRSNZ*) have the same prices, despite their varying numbers of pages per annum, and there are no discounts for purchasing all seven.

To protect total revenue, the concession of cancelling page charges for those authors who take out a personal subscription ended from January 2003. All papers are now charged the author fee of NZ\$50 per published page, with a maximum of NZ\$500 (approximately US\$300 or £175) for papers of ten pages or more. Authors may appeal to the Publishing Manager for remission of the author fee if they can demonstrate that they have no source of funds to cover it. Some New Zealand research funding agencies are willing to pay the author fee for publication of work done under one of their grants.

The subscriptions were raised sharply for 2003 as well and, as had been expected, circulations fell sharply though total revenue rose. The 2002–03 RSNZ budget showed a deficit on the journals,

which had to be made good from the Society's general funds, which are limited. Early drafts of the 2003–04 budget showed a similar problem, though in the medium term the situation is expected to improve as more page-charge income materializes.

The RSNZ was forced to look for economies. One response of the RSNZ's management was to suggest that the *JRSNZ* – the only one of the journals for which the Society had no contractual obligation to the government, the oldest one, and the one with the largest deficit – should cease publication in its present form. This proposal, the subscription increases and the imposition of page charges led to protests from the New Zealand scientific community, some of which ended up on Mr Hodgson's desk. As a result, MoRST civil servants were asked to investigate the state of the RSNZ's journal publishing operations, especially the rationale for continuing the government subsidy and perhaps increasing it. The Society contended that in order to carry out the publishing operation effectively without undue stress on its staff, it needed to raise the staffing level back to 7.8 full-time equivalent (f.t.e.), and sought increased MoRST funding to cover this number of staff.

### Consultancy

MoRST therefore decided to fund a consultancy study to look into ways in which the RSNZ might cut the costs or increase the income of its journal publishing operation, or both. I was invited to undertake this consultancy. I asked MoRST for permission to broaden the brief to consider contemporary developments in scholarly publishing internationally, including electronic publishing and open access, and then to consider more radical change at the RSNZ, and this permission was granted. This paper is based on the consultancy report, though some confidential information has necessarily been omitted from this published version.

The work that I undertook consisted of four parts. First, I reviewed the scholarly publishing situation internationally, taking particular note of the trends towards library consortium purchasing, aggregation of electronic journals and the offer of large package deals by major publishers, and of the controversy between the open access

movement and publishers using 'business as usual' subscription-based models. Secondly, I used my knowledge of scholarly journal production, based in part on my past experience as Publications Production Manager at the Royal Society of Chemistry, to judge whether production economies were possible at the RSNZ. Thirdly, studying the RSNZ's confidential accounts and circulation data, I tried to assess the possibilities of increasing the journals' revenue. Finally, I asked some more fundamental questions and suggested some radical alternatives to the present rather unsatisfactory situation. I considered a large number of possible recommendations that I might make to MoRST; I rejected some, gave reasons for their rejection, and advocated others.

### Can production costs be cut?

#### Editorial costs

The task of Editor varies between 0.2 and 0.6 of an f.t.e. job. Two of the full-time editorial staff edit two journals each. The Publishing Manager edits one journal as well as carrying out his managerial duties. The other two journals are each edited by a part-timer, one of whom only works part-time, while the other (the former Editor of *JRSNZ*, now the Editor of the *New Zealand Journal of Zoology*) also has a part-time research post in a university. Table 2 shows the staff currently charged directly to the journals, totalling 6.2 f.t.e. In addition, some work related to the journals is undertaken by the Society's accounts, IT, and general management staff, but these contributions are not directly costed in the publishing accounts; rather, they are covered along with office costs by the overheads charged to the publishing operation. It appeared to me that the RSNZ had moved some way from the position

Type of work	F.t.e. employed
Editors of journals	3.0
Copy-editor	1.0
Publications managerial duties	0.4
Typesetting	1.0
Sales	0.8
<b>Total</b>	<b>6.2</b>

Table 2. Full-time equivalent (f.t.e.) staff charged directly to the RSNZ journals in late 2003

it inherited from the DSIR, when each Editor was a subject expert in their journal's field, albeit working full-time on editorial duties. If a person covers two journals, or moves from one to another, it is unlikely that he or she is a specialized subject expert on both. All of the Editors reported overwork and stress resulting from the falling numbers of staff. As noted earlier, the Society wishes to increase the staff to 7.8 f.t.e, but cannot find the finance to do so.

#### *Office overheads*

The overheads charged to the publishing operation are substantial; in the 2002–03 accounts, the overheads charged to the journals absorbed most of the MoRST grant, leaving less than one-third of it to go towards the direct costs of the journals operation.

One economy that could be considered would be reduction of these overheads. This could be achieved by having most of the salaried publishing staff work from home, by casualizing the work and asking the staff to become self-employed, or by contracting the entire editorial operation out to a private publisher. Although any one of these options would remove costs from the publishing accounts, it is not clear whether they would provide any real financial benefit to the RSNZ as a whole. If the Society were able to dispose of one of its two buildings entirely, or to put the publishing unit's present space to a new and more profitable use, then they might be worth considering. Simply shifting the overhead costs on to the other existing operations of the Society would be pointless.

#### *Printing and distribution*

The typesetting and printing of the journals are already carried out economically, using in-house desk-top publishing based on authors' keystrokes to produce both PageMaker files for printing and PDF files for electronic distribution. With small circulations, printing costs compared to editorial costs are not large anyway. It is unlikely that print production costs could be radically cut whilst the Society continues to produce seven separate titles each on a quarterly basis.

As noted, distribution in North America and Europe is handled by agents who charge a commission based on sales; as print circulations fall these commissions will drop, but the Society might also consider taking this operation back

in-house as electronic publication becomes more dominant.

#### **Can income be increased?**

The provision of paid-for electronic versions in 2003 was accompanied by the imposition of page charges, as already noted, and by a sharp increase in subscription prices to counteract the expected drop in the numbers of personal subscriptions. By introducing page charges at the same time as increasing library prices, the Society runs the risk of attaining the worst of both worlds so far as circulations (and thus visibility for the journals' contents) are concerned. However, most research and higher education institutions in New Zealand subscribe to all the titles relevant to their particular mission, and all members of a subscribing institution are entitled to free access, so the visibility of the material within New Zealand had improved overall with the package of changes introduced for 2003.

Income from, and visibility in, foreign countries could be increased by offering a package deal for all seven journals at a discount price. Involvement with one or more aggregators could also lead to extra income and visibility as subscribers to those aggregators' package deals would then receive the New Zealand journals. Aggregators' deals might include a pay-per-view option that could bring in useful extra revenue from occasional purchasers. At the moment the only route for them is to go via the RSNZ web site to the 'online shop' and purchase a (paper) copy of an article for \$20 – New Zealand dollars for home customers and US dollars for others – which they would have to do 'sight unseen', as a non-subscriber could only see the title and abstract of the paper. This option is at the foot of a very long scrolling list of possible purchases, is not directly linked from the journal article titles and abstracts, and probably generates very little business.

There seemed to be no particular merit in continuing with the present exclusive arrangements in Europe and North America, which are unusual in the scholarly publishing world and act as an obstacle to the creation of viable larger aggregations including the RSNZ titles. These various aggregation ideas should, however, be approached with care, following detailed scrutiny of the

subscriber lists, to ensure that more revenue was not lost by existing subscribers switching to the new packages than was gained from entirely new subscribers.

Offprint revenue from authors has always been small, though a useful supplementary source in the past, and the practice of authors sending offprints around the world to friends and colleagues has been in decline ever since the invention of the photocopier. With the RSNZ's provision of PDF files to authors, this source of revenue will presumably disappear altogether. Advertising, too, has always been a limited revenue source for specialized, low-circulation scholarly journals. It, too, becomes even more problematic in the electronic environment. Overall the revenue from these supplementary sources is more likely to fall than to increase.

Journals which are paid for three ways by the New Zealand taxpayer – through the MoRST grant, through author charges, and through university library budgets – run the danger of being seen as particularly poor value for money, especially if they simultaneously fail to gain international visibility for New Zealand science. Although the level of page charges imposed by the RSNZ is relatively modest by international standards, I do not see any scope for raising it. The outcry in New Zealand at their imposition in the first place seems to support my view.

### More radical proposals

#### *Open access*

In the present climate of opinion, the most obvious alternative to consider is open access. Access to the full texts of the seven journals is quite widely available to readers in New Zealand itself, owing both to individual subscriptions (including RSNZ members' subscriptions) and institutional subscriptions in universities and research institutes. With the journals' circulations being low, however, access in other countries is likely to be patchy, and this in turn reduces the international visibility and impact of New Zealand's scientific research activities. Open access, combined with coverage of the titles by abstracting and indexing databases and by Internet search engines, would give the New Zealand journals greater international visibility.

If the self-archiving movement gains momentum, it is likely that the New Zealand journals' content will start to become available free of charge anyway, notwithstanding the fact that the RSNZ does not permit authors to mount their PDFs on institutional archives. This prohibition would be hard to enforce. Such a development might, in the medium term, threaten the financial viability of the journals, as subscribers might cancel on the basis that most of the papers are available from authors' institutions' open archive sites. That danger could be circumvented by making the journals open access to begin with.

However, the RSNZ needs to consider carefully whether the income from MoRST plus author charges would be sufficient to maintain the journals at their present level of quality in the longer term. I therefore stopped short of recommending open access outright, but suggested that it be seriously investigated alongside other alternatives.

#### *Annual archival editions*

A major obstacle to open access is concern about the long-term preservation of journals. Although New Zealand recently legislated for electronic legal deposit in the National Library Act 2003, and thus the National Library will take responsibility for preservation of any electronic-only journals published in New Zealand, authors and librarians would probably be more comfortable if an archival edition continued to be kept in individual libraries. Furthermore, the publication of such an edition could preserve a modest additional revenue stream even in an open access environment.

#### *One database*

Rather than producing seven separate titles the RSNZ could consider merging its titles into a single electronic product. Editorial control and peer review would still be conducted within individual disciplines, and each editorial board could retain its own name and logo which would be appended to papers that it had vetted. Operationally the database would be produced by a unified production unit. Electronic publication could occur in several ways:

- (a) Each paper could be added to the database as soon as it was ready.

- (b) Monthly issues of the entire database could be published.
- (c) Seven (or some other number of) titles could still be published, but electronically they could appear more often than quarterly, to reduce publication delay.

The print versions could appear as now, or as annual archival editions as described above, or as a monthly single print journal with each individual article badged to indicate its provenance of peer review.

#### *No print*

The RSNZ could cease to produce print journals completely and have its electronic product(s) as the only version. This would lead to significant savings which could help to counterbalance loss of subscription revenue if open access were chosen.

#### *National collaboration*

There are many other scientific journals published in New Zealand beyond the seven RSNZ titles. The RSNZ, as the premier scientific society in the country, is well placed to convene discussions among societies aimed at greater collaboration between all the journals. In particular, an electronic collection of journals containing all of the significant scientific journals published in New Zealand might have greater appeal to subscribers internationally than a basket of just seven of them. A national collaboration of this kind has recently been announced in South Africa (Sabinet).

### **Ideas considered and rejected**

Several ideas that I had discussed in my report were eventually not recommended. Among these were the following.

*Combining all the titles into a single journal.* This would have lost the 'brand loyalty' that each of the seven titles enjoys at the present time.

*Contracting-out production to a private-sector publisher.* Any savings resulting from this would be illusory unless the RSNZ's overall overhead costs could be cut. It would be inappropriate for the production of these national journals to leave the country, and there are only a few possible contractors within New Zealand, none of which is based in Wellington.

*Teleworking or casualization.* The argument about overheads is the same as for contracting out.

*No print.* It is felt that this would be premature; in a few years' time the print editions of scholarly journals may die out naturally. Meanwhile, the problem of reliable preservation of an archive remains in people's minds. Once the National Library of New Zealand has its electronic legal deposit scheme up and running, such doubts may fade.

### **Recommendations**

#### *Academic editors and a unified production unit*

My first major recommendation was that each journal should have an Editor who is a working scientist in the journal's field, who would be responsible for the decision-making (choice of referees and the final accept/reject decision on each paper) but not for detailed work on each paper. The RSNZ's staff editors should be reorganized into a production unit, with all staff working on all titles as required by work flows, and staff members specializing, if at all, by function and not by journal. Staff editors would be responsible for all the detailed quality control work on papers. I recognized that this would be difficult for the current staff to accept because most of them came from the old DSIR, where they had the same status as other scientific staff. However, with one exception, they have not worked in research for many years, and not all of them are now working on a journal of their own scientific specialism. Realistically, they are now publishing professionals, not scientists. Reorganizing them into a more efficient structure should enable the Society to achieve better productivity without the stressful overwork that they currently suffer. As their numbers would still be small, it should still be possible for staff to enjoy personal relationships with the academic editors.

#### *Electronic versions as the prime product*

Throughout the developed world, scholarly publishers are coming to regard their electronic journals as the main product with the print version subordinate to it. With this new perspective, I propose that the electronic versions be published more frequently (bi-monthly or even monthly) to improve speed of publication, while the print (or CD-ROM)

version of each journal should be annual. This would reduce production and distribution costs, while giving libraries the security of their own copy and authors the satisfaction of being able to see a properly printed version of their papers.

#### *Agencies and aggregators*

The exclusive agency arrangements in the North American and European marketplaces should cease. They are less necessary in a predominantly electronic environment anyway. If an open access model is adopted there is no 'subscription fulfilment' administration to be done. If the print version is only annual, the physical distribution task is smaller and could be handled from New Zealand. If a subscription-based model continues, there are good arguments for going into aggregations in order to gain 'critical mass' along with other smaller publishers. The ALPSP/Swets scheme, for example, would put the RSNZ journals with the products of similar publishers and could well improve sales in North America and Europe. It is also suggested that efforts be made by the RSNZ and MoRST jointly to bring about a pan-New Zealand aggregation, with the other scientific societies in the country. Even for the RSNZ journals alone, flexible licensing terms should exist, enabling libraries or consortia of libraries to buy different combinations of the journals.

#### *Open access*

The RSNZ should seriously consider the merits of the open access model of scholarly publishing, funded by payments by the authors' institutions or their research funding agencies. There should be wide consultation among scientists, university administrations, university librarians, research institutes' managements, research funding agencies, and MoRST before this model is introduced in order that all stakeholders fully understand the open access model and how it works.

Even if it finally decided that the open access model cannot be made workable and acceptable in the New Zealand context, the RSNZ should consider making the electronic full texts available free of charge to all after a time delay – say two years – in order that New Zealand research work achieves good visibility throughout the world.

#### *Transitional arrangements*

I recommended that the report should be considered by MoRST and the RSNZ on a fairly short timescale. However, a one-off payment, in addition to the usual NZ\$350,000, should be made by MoRST to RSNZ to cover (a) the projected deficit on the journals in the financial year 2003–04 and (b) the costs of implementing any changes resulting from this report. From 2004–05 onwards the MoRST support should be calculated on the basis that the new structure is in place. The rationale for the public support of the journals is that the recognition of New Zealand science throughout the world is a public good. It should be greater than the present figure, since this has seen no increase in twelve years, and in future it should be increased in line with general inflation so long as the RSNZ can be seen to be providing satisfactorily the 'public good' for which the government pays.

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