Who Cites Your Publications
When You Work in the Tropics?

One question which working (i.e., publishing scientists) often ask themselves is who they are writing for. Most often, unless they work in a very applied field, the answer is that those who read and use scientific results are other scientists. Therefore, since scientists usually cite the publication they used in the course of the work that led to a certain paper, it is possible for the number of “users” of a given scientific paper to be assessed quite accurately on the basis of so-called “citation analyses.” Such analyses can be performed to assess the impact of the scientific research conducted by a given country, such as Thailand, an institution such as ICLARM (see p. 3) or an individual scientist. Most citation analyses available to date are exclusively based on the computerized files of the Institute of Scientific Information (ISI) in America, and refer only to citations in so-called “core journals,” that is, in journals that are themselves heavily cited, and which are almost all published in developed countries.

The preliminary citation analysis presented here is based on papers or books which I have authored, co-authored or edited between 1973 and 1983, and includes any citation, by any journal, article, book, report or thesis, but excludes all self citations. The main purpose of this analysis is to assess—for the benefit of colleagues working in developing countries—whether citation analysis can be used to measure the impact of one’s work.

As in my previous analysis of reprint requests (ICLARM Newsletter, April 1982, p. 18), I should stress here that most of my papers which cover the field of aquatic and fishery biology are heavily oriented toward problems and situations arising in tropical developing countries. Altogether, 50 items are included here. Other items, which received zero citations, are discussed only in the legend of Fig. 1.

Table 1 presents the key results of the analysis. As might be seen, of the 307 citations received to date, only 31 (or 10%) were included in the ISI files.

Table 1. Citations received (excluding self citations), 1974 to 1983. Note large numbers of references received in Asia (due to ICLARM’s location) and low citation counts in “core” journals (ISI files).

<table>
<thead>
<tr>
<th>Type of citing publication</th>
<th>Latin America &amp; Caribbean</th>
<th>Oceania (incl. Australia)</th>
<th>USA &amp; Canada</th>
<th>Total citations</th>
<th>Citations in ISI files</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regularly issued journal</td>
<td>4</td>
<td>16</td>
<td>17</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Book, book chapter, monograph</td>
<td>0</td>
<td>48</td>
<td>11</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>Reports</td>
<td>9</td>
<td>42</td>
<td>21</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>Theses</td>
<td>1</td>
<td>43</td>
<td>12</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>14</td>
<td>149</td>
<td>61</td>
<td>9</td>
<td>24</td>
</tr>
</tbody>
</table>

Dr. Conner Bailey, ICLARM affiliate scientist, searching for material in the library of the Research Institute for Marine Fisheries, Jakarta. Most “core” journals inadequately cover work conducted in the tropics.

DANIEL PAULY
ICLARM

Table 2. Coverage of "tropical topics" in six heavily cited "core" journals in marine biology, as compared with tropical topics in three "non-core" journals from tropical developing countries.

<table>
<thead>
<tr>
<th>&quot;Core&quot; journals</th>
<th>Vol.</th>
<th>Year</th>
<th>Total pages</th>
<th>Pages with tropical topics</th>
<th>% coverage of tropical topics</th>
</tr>
</thead>
<tbody>
<tr>
<td>J. Mar. Biol. Assoc. U.K.</td>
<td>63</td>
<td>1983</td>
<td>945</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Can. J. Fish. Aquat. Sci.</td>
<td>38</td>
<td>1981</td>
<td>1,923</td>
<td>8</td>
<td>0.4</td>
</tr>
<tr>
<td>Limnol. Oceanogr.</td>
<td>26</td>
<td>1981</td>
<td>1,182</td>
<td>87</td>
<td>7.4</td>
</tr>
<tr>
<td>U.S. Fish. Bull.</td>
<td>79</td>
<td>1981</td>
<td>812</td>
<td>145</td>
<td>17.3</td>
</tr>
</tbody>
</table>

| "Non-core" journals              |      |      |             |                            |                             |
| Bol. Inst. Oceanogr. S. Paulo    | 24-28| 1975-79| 1,379      | 1,003                      | 72.7                        |
| Indian J. Fish.                  | 26-28| 1973-81| 833        | 816                        | 98.0                        |
| Fish. Res. J. Philippines        | 1-5  | 1976-90| 920        | 912                        | 99.0                        |

All articles based on material and data obtained or originating between the tropics of Cancer and Capricorn.

The explanation for this extraordinary result is
a) ISI deals only with "core" journals, i.e., journals which themselves are heavily cited.
b) Most "core" journals inadequately cover work conducted in the tropics, as opposed to "non-core" journals that are published in the tropics (see Table 2).

ISI justifies quite legitimately the selection of "core" journals by a number of reasons, one of which is the fact that most citations are accumulated by articles published in "core" journals. However, Fig. 1 shows that of my six best cited papers (more than 12 references), only two were published in "core" journals as defined by ISI.

Two very important "core" journals in marine biology are the Journal of the Marine Biological Association of the United Kingdom and the Canadian Journal of Fisheries and Aquatic Sciences. Taken together, these two journals devote 0.3% of their pages to tropical topics—either because they do not receive high quality manuscripts from scientists working in the tropics, or because their editorial policy does not encourage such submissions. The situation is now such that occasional "tropical" papers published in these journals, or in others like them, will generally not be accessible to scientists working in the tropics because their non-coverage of relevant topics magnifies their high price. This leads to the paradoxical situation that some highly cited North American or European journals may be—as viewed from the tropics—fringe journals that may be less valuable than an abstract service (e.g., ASFA) or current awareness publication such as "Current Contents" and ordering reprints.

Fig. 1. Frequency distribution of citations received (1974-1983). Note that distribution is strongly assymetrical, with a few heavily cited papers, and a large number with very few citations (papers with zero citation include only items up to 1982, since papers published in 1983 are not likely to be cited the same year). Black portions of histogram represent number of papers belonging to the primary literature (i.e., refereed journals and monographs).

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