HOLES IN THE DIKE: IS CAMBRIDGE SCIENTIFIC LOSING WATER?

Stephanie C. Haas
Marston Science Library
George A. Smathers Libraries
University of Florida

ABSTRACT: Initiated in 1968, *Water Resources Abstracts* (WRA) was produced by the U.S. Geological Survey until 1994. Both NISC and Cambridge Scientific Abstracts (CSA) expressed interest in continuing the service and eventually CSA took over its production. The index has always been primary in locating water-related information, although its biological coverage focused on toxicological issues. With CSA production into the second full year, an initial assessment of WRA journal indexing practices appeared appropriate. This study looks at WRA coverage of key journals in limnology (Haas, 1992) and in water chemistry (Delfino, 1977), as well as selected additional titles designated "core" by CSA.

INTRODUCTION

Water Resources Abstracts offers a comprehensive range of water-related topics in the life and physical sciences, as well as the engineering and legal aspects of the conservation, control, use, and management of water.

SUBJECT COVERAGE

Engineering Works and Hydraulics
Nature and Properties of Water
Resources Data: Networks, Techniques and Computer Applications
Reviews, Bibliographies and other Water Literature
Water Cycle and Hydrology
Water Quality Management and Protection
Water Quantity Management and Control
Water Resources Planning and Water Law
Water Supply Augmentation and Conservation

(From Dialog 117 Water Resources Abstracts, Blue Sheets, Revised January 1996)

From this description, it appears that Cambridge Scientific has continued the coverage tradition established by the U.S. Geological Survey. Because this is a key indexing service for all water related research, it is important to know if the statement is supported by the actual content of the database. In order to evaluate the current coverage practices, appropriate journal clusterings were selected from previous studies.

The journals covered in WRA receive one of three designations by CSA: "Core sources-indexed cover-to-cover; all papers in each issue are included; Priority sources- more than 50 percent of the material is covered; Selective sources-less than 50 percent of the material is covered." Because these designations have been formally established by CSA, they are the appropriate criteria to measure the concordance of policy to actual indexing practice.

METHODOLOGY

Haas (1991) looked at the journals cited in physical, chemical, and biological limnology research. Delfino (1977) dealt with water chemistry journals. These two papers provided the basis for the journal titles analyzed in the present study.

Dr. Joseph Delfino, Chairman, Department of Environmental Engineering Sciences, University of Florida, is an internationally recognized expert in the fields of water chemistry, environmental contaminants, and water quality. In 1996, he was asked to review the WRA serials source list used by CSA. Dr. Delfino selected titles of particular importance in the water-related aspects of environmental engineering which had appeared since his 1977 article. Eighteen "core" designated titles from that selection are also analyzed in the present study.

Each of the journal titles identified was searched in the SilverPlatter CD-ROM, *Water Resources Abstracts* (1967-July 1996) for 1994 and 1995 coverage. In 1993, CSA adopted the use of journal title abbreviations. While the abbreviations provide consistent retrieval for 1994-95, retrieval of earlier records is difficult and sometimes impossible. Search limitations exist on the CD of WRA because there is no journal title field; searching is done in the SO=(source) field. As an example, for the journal *Water Resources Research*, the abbreviation water-resources can be used to pull some of the records in 1993 and all of the records for 1994-95. But for the records entered with the full title in 1993 and before, you must search "water resources research" in the SO field. This will retrieve not only the correct journal articles but publications from the various water resources research centers in all of the states. Because of the difficulty in insuring accurate counts the current study is limited to records indexed in 94-95.

For each available journal title, a total 1995 record count was obtained from SciSearch. This count should be used simply as a baseline reference point, as it is well-known that ISI's policy is to be inclusive: indexing comments, notes, replies, etc. While these may indeed be useful in research, they lie outside the coverage of "research article" as defined by many indexes and abstracting services. Anthia Gatto of CSA indicated that unless peripheral articles were of substantial interest, they would not be indexed in WRA. Additionally, for "core" designated titles, CARL Uncover records were visually inspected for 1995 entries. Individual journal issues were also reviewed for *Environmental Geology* and for v.170 of the *Journal of Hydrology*.

In order to provide some comparison between WRA's coverage and that of other indexing and abstracting services, the "core" titles identified by Delfino from the 1996 serials listing were searched in Dialog file 414 the Journal Index. This provided a rough estimate of the total numbers of articles from each journal found in various indexes. Results from twenty databases were reviewed in detail and seven indexes were chosen for further searching: Pascal, Pollution Abstracts, Biological Abstracts, SciSearch, Environmental Periodicals Bibliography, Compendex, and GEOBASE. Bluesheets for each file were reviewed to determine the most appropriate method of capturing all possible variations of title entries. The general search strategy was to expand (e jn=) the journal title, using both the full title and multiple abbreviated forms. These indexes were searched for 1995 record counts for each title.

RESULTS

Table 1 presents the results from searching WRA for the physical limnology journal titles identified in Haas (1991). Table 2 presents the results from searching WRA for chemical limnology titles identified in Haas (1991). Four titles were not included in this table because they are in Table 1: *Limnology and Oceanography, Archiv für Hydrobiologie, Hydrobiologia,* and *Proceedings Theoretical and Applied Limnology* .

Delfino (1977) dealt with seeking information in water chemistry. He categorized journals into six broad subjects of interest to water chemists, e.g., analytical techniques, geological sciences and soils. Four of these categories were searched in WRA. The results are presented in Tables 3-6.

Table 7 gives the WRA coverage of the post-1977 "core" journals selected by Delfino as being of particular interest to water-related environmental research. The results from searching these eighteen additional titles in seven other Dialog databases are presented in Table 8.

Table 1. Physical Limnology Journal Coverage by WRA
(Listing from Haas, 1991, p.201)

Title	94	95	ISI Count(1)	CARL(2)	CSA Coverage
Limnology and Oceanography	84	59	176		priority
Archiv für Hydrobiologie	41	19	93		priority
Hydrobiologia	84	83	523		priority
Journal of Hydraulic Engineering	74	66	154	117/4	core
Intl Rev Gesamten Hydrobiologie	16	11	35	47	core
Aust J Marine Freshwater Res					no coverage
J Geophysical Res	82	40	1346		selective(B/C/D)(3)
Proc Theoret Applied Limnology					no coverage
J Phys Ocean	14	1	216		selective
Water Resources Research	221	91	283	316/23	core
J Fluid Mechanics					no coverage
Journal of Glaciology	57	53	55		priority

(1) The ISI Count is the number of articles indexed in Science Citation Index in 1995.
(2) The CARL count is the number of articles listed in CARL Uncover in 1995/The second number is the number of non-research articles. These included editorials, comments, replies, news items, committee reports, corrections, etc.
(3) B-Solid earth, C-Oceans, D-Atmospheres

Table 2 Chemical Limnology Journal Coverage by WRA
(Listing from Haas, 1991, p.202)

Title	94	95	ISI count(1)	CARL(2)	CSA Coverage
Canadian J Fish Aquatic Sci	113	71	301		priority
Science	16	20	2597		selective
Water Research	278	341	375	365/9	core
Geochimica et Cosmochimica Acta	48	32	470		selective
ES&T	116	163	651		priority

(1) The ISI Count is the number of articles indexed in Science Citation Index in 1995.
(2) The CARL count is the number of articles listed in CARL Uncover in 1995/The second number is the number of non-research articles. These included editorials, comments, replies, news items, committee reports, corrections, etc.

Table 3. Analytical Technique Journals in WRA
(Listing from Delfino, 1977, p.671)

Title	94	95	ISI count(1)	CSACoverage
American Laboratory(22 records between 1970-88)	5	5	135	selective
Analyst				no coverage
Analytica Chimica Acta				no coverage
Analytical Chemistry	17	0	809	selective
Analytical Letters	4	2	199	selective
Applied Spectroscopy	0	0	294	selective
Atomic Absorption Newsletter	(51 records earlier than 1990)			no coverage
Intl J Environ Analyt Chem	49	40	130	selective
J Amer Oil Chem Soc	(35 records earlier than 1987)			no coverage
J Assoc Off Anal Chem				no coverage
J Chromatography	11	0	1618	selective
Talanta	5	0	267	selective

(1) The ISI Count is the number of articles indexed in Science Citation Index in 1995.

Table 4. Geological Sciences and Soils Journals Covered by WRA
(Listing from Delfino, 1977, p.671)

Title	94	95	ISI count(1)	CARL(2)	CSACoverage
American Mineralogist	4	0	160		selective
Canadian J Earth Sciences	7	3	170		selective
Chemical Geology	10	3	175		selective
Clays and Clay Minerals	4	0	90		selective
Earth & Planetary Sci Letters	17	7	237		selective
Envir Geology and Water Sciences(3)	62	34	75	80/14	core
Geochimica et Cosmochimica Acta	46	32	470		selective
Geological Soc America Bulletin	5	0	107		selective
Ground Water	74	94	122	107/16	core
Journal of Geology	2	0	55		selective
Journal of Soil Science					no coverage
Soil Science	24	15	98		selective
Soil Science Society of Amer J					no coverage

(1) The ISI Count is the number of articles indexed in Science Citation Index in 1995.
(2) The CARL count is the number of articles listed in CARL Uncover in 1995/The second number is the number of non-research articles. These included editorials, comments, replies, news items, committee reports, corrections, etc.
(3) The title of this journal is now Environmental Geology.

Table 5. Environmental Health, Environmental Toxicology and Pesticides
(Listing from Delfino, 1977, p.671)

Title	94	95	ISI count(1)	CSA Coverage
Arch of Envir Contam and Toxicol	79	74	156	priority
Archives of Envir Health	1	1	84	selective
Bull Envir Contam and Toxicol	95	99	269	priority
Envir Health Perspectives				no coverage
J Envir Health	6	5	112	selective
J Envir Sci and Health Part B	7	3	45	selective
J Pesticide Science	1	1	62	selective
J Toxicol and Envir Health	2	0	102	selective
Pesticide Science	2	8	178	selective
Pesticides Monitor J				no coverage

(1) The ISI Count is the number of articles indexed in Science Citation Index in 1995.

Table 6. Environmental Engineering and Science
(Listing from Delfino, 1977, p.671)

Title	94	95	ISI count(1)	CARL(2)	CSACoverage
CRC Crit Rev Envir Control					no coverage
J Amer Water Works Assoc					no coverage
J Colloid and Interface Science	10	0	508		selective
J Envir Eng Division (ASCE)	74	57	157		priority
J Envir Sci and Health Part A	79	12	146		priority
J Hydrology	208	161	226	213/4	core
J Water Poll Cont Fed					no coverage
Swiss J Hydrology					no coverage
Water and Pollution Control (Ceased publication 1993)					core
Water and Sewage Works					no coverage
Water and Wastes Engineering					no coverage
Water Research	278	341	375	365/9	core
Water Resources Bulletin	86	67	96	89	core
Water Resources Research	221	91	283	316/23	core

(1) The ISI Count is the number of articles indexed in Science Citation Index in 1995.
(2) The CARL count is the number of articles listed in CARL Uncover in 1995/The second number is the number of non-research articles. These included editorials, comments, replies, news items, committee reports, corrections, etc.

Table 7. Additional Core Titles selected by Delfino from WRA 1996 Serials Listing

Title	94	95	ISI count(1)	CARL(2)
Advances in Water Resources	20	29	30	30
Aquatic Toxicology	60	58	66	66
Estuaries	56	54	95	58/1
Ground Water Monitoring and Remediation	23	26	62	54/16
Journal of Contaminant Hydrology	34	54	65	83/8
Journal of Great Lakes Research	47	47	114	65/8
Journal of New England Water Works Association	5	25		41/15
Journal of Soil and Water Conservation	65	83	143	113/3
Lakes and Reservoirs:(3) Research and Management		12		
Marine Environmental Research(4)	20	123	95	91
Marine Pollution Bulletin	177	176	257	259
Rivers	20	10		18(5)
Water Environment and Technology	130	79		158
Water Environment Research	80	105	135	143
Water Quality International	14	16		
Water Resources Management	20	19		19
Water Science and Technology	797	470	822	679/6
Water, Air, and Soil Pollution	119	149	757	728

(1) The ISI Count is the number of articles indexed in Science Citation Index in 1995.
(2) The CARL count is the number of articles listed in CARL Uncover in 1995/The second number is the number of non-research articles. These included editorials, comments, replies, news items, committee reports, corrections, etc.
(3) Lakes and Reservoirs began in 1995.
(4) In 1995, 107 conference proceeding papers were published in v.39,no.1-47 of this journal. An additional 23 articles appeared in v.40, nos.1-4. WRA indexed 107 conference papers and only 16 of the 23 articles appearing in v.40. Both ISI and CARL apparently missed some of the conference papers.
(5) Issue no.4, v.5 missing; count is from 3 issues

Table 8. Comparison of Selected WRA Core Journal Coverage in Seven Indexes: 1995 Records

Journal Title	WRA 70+	Pascal 73+	Poll Abs 70+	BIOSIS 69+	SciSearch 73+	Env Bibl 73+	Compendex 70+	GeoBase 80+
Adv Wat Res	29	29			30	23	6	129
Ground Water Mont & Remed	26		20	28			7	
Aquatic Toxicol	58	66	63					
Estuaries	54	56	11	46		24		51
Journal Contam Hydrology	54	59	39		65	53		24
Journal Great Lakes Research	47		19	93	114		15	
Journal New Eng WW Assoc	25		1					
Journal Soil & Water Conserv	83	107	14		143	63		77
Lakes & Reserv	12							11
Marine Env Res	123	24	50	152	95	84		19
Marine Poll Bulletin	176	186	180	178	257	158		176
Rivers	10			7				5
Water Env & Technol	79	59	23			99	7	
Water Env Res	105	119	61	13	152		87	
Water Qual Intl	16		5				8	
Water Res Mgt	19	19				15		9
Water Sci & Tech	539	276	381	688	722	529	636	40
Water Air & Soil Poll	239	747		732	757	732	572	276
Totals	1694	1747	867	1937	2335	1779	1338	817

DISCUSSION

Of the 81 titles studied, 27 were core, 10 were priority, 26 were selective, and 18 had no coverage by WRA. The areas with the highest number of titles receiving no coverage were the categories of Analytical Technique Journals (Table 3), and Environmental Engineering and Science Journals (Table 6).

According to CSA, core journals are indexed cover-to-cover and priority journals have more than 50% of their articles indexed.

By comparing the total 1995 record counts in SciSearch, CARL, and the seven indexes, one is able to get a composite view of the concordance between CSA's policy and practice. Of the 27 core titles, only seven (25%): *Advances in Water Resources, Estuaries, Ground Water Monitoring & Remediation, Journal of New England Water Works Association, Lakes & Reservoirs,* and *Water Resources Management* appear to have complete indexing. An accurate count for *Rivers* could not be determined, and *Water and Pollution Control* ceased publication in 1993.

The only other category of journals which can be analyzed with any degree of accuracy are those with a priority designation: "more than 50% covered." While CARL counts were not done for all priority titles, ISI counts were obtained. Acknowledging the possibly exaggerated count of ISI, it appears that only one title out of the ten priority journals approaches the 50% indexing level. The *Journal of Glaciology* actually was indexed close to a "core" level; 53 out of 55 articles were covered.

Acknowledging the difficulty in arriving at truly accurate record counts, Table 8 offers some insight into how other databases compare with WRA coverage on specified titles. In 1995, WRA had the highest record counts for *Journal of theNew England Water Works, Lakes & Reservoirs,* and *Water Quality International.* Although no index (besides WRA) covered all eighteen journals, four out of the other six indexes had higher total record counts for 1995 for the same set of titles. Perhaps the most interesting result from this exercise was the discovery of the depth of coverage of the Pascal database: it covered 13 of the 18 journals with a total record count of 1747. The total record count for WRA for the total 18 journals was 1694.

Six months into 1996, many 1995 articles remain missing from the WRA database. While a future review, another six months to a year, will certainly answer the question whether or not these articles will eventually appear, it is of immediate concern that the currency of coverage has already been abrogated. In his 1990 study of Aquatic Sciences & Fisheries Abstracts (ASFA), another CSA index, Tapaswi comments about missing articles: "The losses are mainly in the form of all the articles appearing in a specific missing issue(s)/number(s), but not a partial loss from the number(s)/issue(s) from which other articles are cited. The articles lost/not cited by ASFA by way of 'partial loss' from any issue/number of a volume of a specific journal are very few. Among these are the articles falling under the category 'discussions and replies' or 'comments and replies.' "(Tapaswi, 1990, p.154) While the current study did not specifically explore the nature of missing articles, the author did notice for v. 31 of *Water Resources Research* only issues 1,2,6,11, and 12 were covered. Also for v. 40 of *Marine Environmental Research* issue no. 3 was totally missed. One might hypothesize that the "missing issue" syndrome is a malady suffered by WRA as well.

CONCLUSIONS

This initial study indicates that CSA is not indexing either the core or priority journals to the standards they have prescribed. Whether this is a transitional phenomena which will be righted quickly or a more serious erosion of data reliability remains to be seen. From reviewing Table 8, it appears that searching Pascal in combination with BIOSIS would give the greatest depth of coverage for most of the titles with the exception of *Journal of the New England Water Works Association, Lakes & Reservoirs* (which is new and will probably be picked up by one, if not both indexes), *Rivers, Water Environment & Technology*, and *Water Quality International*. This study again points out the critical need to search more than one database in order to approach any degree of comprehensiveness.

While it is premature to draw conclusions concerning the future quality of WRA, it will behoove both researchers and information specialists to continue tracking the situation.

REFERENCES

Delfino, J.J. 1977. Water chemistry: seeking information. *ES & T* 11(7):699-72.

Haas, S.C. 1992. Finding Fish in the Gitche Gumee: Information Partitioning in Limnology. IN: *The Aquatic Environment: Description, Management, Conservation. Proceedings of the 17th Annual Conference*, (ed. by E. Fuseler and S. Wiist), pp. 197-205. IAMSLIC, Fort Collins, CO.

Tapaswi, M.P. 1990. How Good is Compact Cambridge ASFA? (Aquatic Science Bibliographic Data Base on CD-ROM) IN: *IAMSLIC at a Crossroads: Proceedings of the 15th Annual Conference*, (ed. by R.W. Burkhart and J.C. Burkhart), pp. 151-156. IAMSLIC, St. Petersburg, FL.