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OCEANOGRAPHIC CD-ROMS: OCEANOGRAPHIC & MARINE RESOURCES VOLUME ONE,  
AND, AQUATIC SCIENCES AND FISHERIES ABSTRACTS

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In: Preserving the past, looking to the future. James W Markham and  
Andrea L Duda, eds. Proceedings of the 19th annual conference of  
International Association of Aquatic and Marine Science Libraries  
and Information Centers held at Bethesda, Maryland, 11-15 October  
1993. International Association of Aquatic and Marine Science  
Libraries and Information Centers, Fort Pierce, Florida, 1994. pp 27-36.

Abstract: Cambridge Scientific Abstracts' Aquatic Sciences and  
Fisheries Abstracts database has been available for several years on  
CD-ROM. National Information Services Corporation has recently  
released Oceanographic & Marine Resources Volume One, offering  
alternative CD-ROM access to the oceanographic literature. This  
paper compares the two products and provides decision points to  
facilitate a selection decision.

First introduced in 1986, Aquatic Sciences and Fisheries Abstracts  
(ASFA) has been a pioneering CD-ROM database in marine science for  
several years. Oceanographic & Marine Resources Volume 1 (OMR1) CD-  
ROM was recently introduced by the National Information Services  
Corporation. An interesting question is whether the OMR1 CD-ROM  
presents alternative or complementary coverage of the marine science  
literature.

ASFA aims to cover the worldwide literature of aquatic science both  
marine, brackish, and freshwater (undoubtedly an impossible task but  
deserving of bibliographic appreciation). ASFA has long been a  
familiar friend in marine science information with known strengths and  
some weaknesses (older references cited in Varley 1990; recent  
references include Haas 1991, Einarsson 1990, Markham 1990, Tapaswi  
1990). ASFA CD-ROM offers 463,200 abstracted references from 1978 to  
present, with 34,200 added each year. Over 254,000 (55%) of these  
references are encoded by ASFA for the marine environment, with  
brackishwater environment-encoded references numbering over 33,000  
(7%). Since ASFA's environmental encoding doesn't include theoretical  
studies, there are more ocean-related references in ASFA than these  
numbers indicate. Though ASFA CD-ROM coverage is stated by Cambridge  
as 1978 to present, this is actually the indexing workperiod (as it is  
for the timespan of coverage of almost all indexes and abstracting  
journals). Searching ASFA's publication year field reveals a  
significant quantity of 1977 references (12,561) in the same order of

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magnitude as 1978 coverage (18,418). Therefore, indexers were working on many 1977 references during the 1978 calendar year. ASFA's coverage for 1974-1976 numbers 3684.

ASFA CD-ROM's startup and renewal cost for acquiring coverage starting from 1978 is US \$2995. The startup and renewal cost for acquiring coverage starting from 1988 is US \$1995. ASFA CD-ROM is updated quarterly. Multiuser CD-ROM network pricing is available.

With the release of Oceanographic & Marine Resources Volume 1 (OMR1), CD-ROM access to the marine science literature has expanded. OMR1 CD-ROM, in the version reviewed for this paper, is the first issue and should be viewed as an evolving product compared to a mature product like ASFA. OMR1 currently is comprised of three databases from the following contributors: (1) Oceanographic Literature Review (OLR), (2) Libraries of the Institute of Oceanographic Sciences Deacon Laboratory and Proudman Oceanographic Laboratory, and, (3) Plymouth Marine Laboratory and Marine Biological Association Library.

Oceanographic Literature Review (OLR) currently indexes and abstracts oceanographic literature from over 2000 journals plus books, conference proceedings, and reports (according to a recent 1993 printed issue). Most but not all references are abstracted. OLR changed production recently and is now part of Elsevier/Geo Abstracts' GEOBASE database system. Coverage of marine geology can be expected to be very good since GEOBASE has long had an earth science and geology focus. OLR's predecessor was subtitled Deep Sea Research Part B, published by Pergamon Press. In the Pergamon days, OLR gathered references from 3500 journals, adding approximately 6000 references annually. OLR coverage on the OMR1 CD-ROM is stated as 1976 to present, with over 83,000 references, adding approximately 7,500 per year. Searching the publication year field reveals that substantial coverage actually starts with 1980 (4744); 1976-1979 coverage involves a minor amount of records (746).

The Libraries of the Institute of Oceanographic Sciences Deacon Laboratory and Proudman Oceanographic Laboratory jointly produce the IOSlib database of incoming items for their collections. IOSlib's indexed records from 1985 to present are on the OMR1 CD-ROM and were previously unavailable on CD-ROM. Marketing literature states that IOSlib records currently number 92,000, with over 15,000 added per year from journals, books, technical reports, conference papers, etc. The IOS Deacon Laboratory Library has 1000 current serials and the Proudman Oceanographic Laboratory Library has 250 current serials. Abstracts are not provided with IOSlib references.

The Library of the Plymouth Marine Laboratory and Marine Biological Association produces two databases whose records are on the OMR1 CD-

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ROM: a marine and estuarine pollution database (corresponding to the printed Marine Pollution Research Titles), and, a British waters database (corresponding to the printed Estuaries and Coastal Waters of the British Isles: an Annual Bibliography of Recent Scientific Papers). These records were previously unavailable on CD-ROM. Marketing literature states that Plymouth's indexed references number 14,000, covering 1987 to present; 2500 marine and estuarine pollution records are added annually. Abstracts are not provided with these references.

OMR1 CD-ROM costs US \$970 for an annual subscription with semi-annual updates. Multiuser CD-ROM network pricing is available for OMR1 CD-ROM.

Search software for ASFA CD-ROM is the well-known SilverPlatter CD-ROM software. OMR1 uses NISC's proprietary ROMwright software. Though ASFA's SilverPlatter search software works very well and is serviceable, OMR1's ROMwright search software is more advanced in its features, and, in its easy-to-use novice and expert searcher (fielded searching) interfaces. Both ASFA and OMR1 CD-ROMs are on display during this IAMSLIC conference. Try some searches and compare the CD-ROM search software; they are very different. The Scripps Library has offered SilverPlatter and NISC CD-ROMs for public use for several years. Users typically learn the use of NISC's ROMwright search software more readily than SilverPlatter, though they do not have difficulty with SilverPlatter. From the librarian/teacher's perspective, OMR1's ROMwright software principal advantage is that it presents onscreen cues that tell the user how to conduct a search, view references, and print them. For example, with OMR1's ROMwright novice searcher interface, new users can conduct a well-executed author search unaided. With ASFA's SilverPlatter software, users have to refer to documentation to learn how to do an author-fielded search; no cues are present onscreen telling them how to do this most basic type of search.

A critical failing of ASFA's SilverPlatter software is its inability to page through consecutive references, with consecutive references appearing at the top of the display window (ie 1-2-3-4 etc). To page through consecutive references on ASFA/SilverPlatter, SilverPlatter says to simultaneously press the CTRL and PGDN keys. This tip is not displayed onscreen to cue the user; they have to check the documentation. However ASFA/SilverPlatter will appear to page consecutively through references (1-2-3-4-5) until a screen appears wherein one reference appears at the top of the display window and another reference begins to appear at the bottom of the display window. Press CTRL-PGDN; ASFA/SilverPlatter then skips over that reference that was beginning to show at the bottom of the display window and goes on to display the next reference after that. By

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contrast, OMR1/ROMwright displays titles of references retrieved; the user then selects a title of interest to view the corresponding reference in its entirety. Alternatively, after a search, the user can page through the complete references one-by-one.

OMR1/ROMwright software offers a flexible screen display which ASFA/SilverPlatter does not. The CD-ROM manager can specify and/or modify an introductory display screen, the search template display screen, and, the format of records displayed. These screens and formats are specified by undocumented ASCII configuration files with the file extensions .DSP and .SCN. The introductory display screen can be changed to incorporate the library's name. The format of references retrieved can be altered so that subject descriptors appear below the abstract. The capability to customize these aspects of CD-ROM search software is fairly unique.

The first release of OMR1 CD-ROM had references duplicated on disc among OLR and the library-contributed databases but the second release merges duplicates. NISC processes the OMR1 records to identify duplicate records and create composite records of the duplicates to preserve distinctive information, including indexing schemes, from each contributing database.

#### COMPARATIVE SEARCHES

Several searches were conducted to compile pools of references in certain oceanographic disciplines in order to determine merits and failures in coverage by each CD-ROM. The references from one CD-ROM were searched individually on the other CD-ROM in order to reveal unique references found in each CD-ROM database, thereby making possible one kind of comparison. For these searches, ASFA is assumed to be stronger in fisheries and aquaculture and topics in these areas were not examined. For any oceanographic topic searched, one would expect both CD-ROM databases to cover the major journals and then differ in their coverage of lesser journals, monographs, meeting proceedings, and technical reports.

The searches were generally composed as either single word searches or a two word phrase search. Since these simple searches do not represent valid search strategies for the topics searched, comparison of the total numbers of references retrieved from each CD-ROM database is inappropriate, and, those numbers are not given below. Even with these simple searches, it was obvious that, in searching and retrieval, ASFA has a considerable advantage over OMR1; each ASFA reference has an abstract which presents many more words for searching than does article title and indexing. OMR1 has abstracts only for the OLR-origin records and not all of them have abstracts. The consistent presence of an abstract in ASFA tended to result in a higher retrieval

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than OMR1 for every simple search executed by the author, except the marine geology search on Sunda Arc (see below). However, many of the extra references retrieved initially by an ASFA search were indeed present in OMR1; OMR1 retrieval quantity was hindered the author's overly simple search strategy. More complex search strategies would be more productive if one wanted to compare total yields of references between the two CD-ROMs. However the author took a different approach and worked from small pools of references within certain topics of oceanography.

In addition, ASFA has a unifying subject vocabulary which greatly facilitates retrieval of many topics. OMR1's subject vocabulary differs among the three database providers so the searcher has to pay close attention to several indexing schemes to benefit from the use of them. Indexing can make a difference in retrieval for some topics; ASFA had better taxonomic indexing for the Riftia search (see below) than OMR1.

#### A Topic in Marine Geology

A search on a topic in marine geology, "Sunda Arc", retrieved a total pool of 55 references from both CD-ROMs. There were many journal articles present in OMR1 CD-ROM that were missing in ASFA CD-ROM that the author judged conservatively to be of interest to marine geologists or other marine scientists. OMR1 CD-ROM retrieved additional geological articles on the Sunda Arc but the author selected only ones that were blatantly relevant to marine geology. Selected articles unique to OMR1 and missing from ASFA appeared in the following journals:

CCOP Technical Bulletin 19:29+; 19:51+; 19:55+  
Contributions to Mineralogy and Petrology 105(5):585+  
Geology 14(5):404+; 97(10):1250+  
Geophysical Journal of the Royal Astronomical Society 85(2):365+  
Journal of Geophysical Research 93(B12):15163+; 92(B1):441+;  
92(B1):421+  
Journal of Petrology 24(1):98+  
Marine Geology 79(1/2):105+  
Nature 342(6252):856+  
Netherlands Journal of Sea Research 24(2-3):313+; 24(2/3):131+  
Systematic and Applied Microbiology 14(4):397+  
Tectonophysics 181(1-4):223+; 146:241+

ASFA did have a few Sunda Arc references that OMR1 did not contain. However these unique ASFA references were either from much lesser sources or they predated OMR1's coverage of the literature from 1980 to present. ASFA's greater timespan of coverage does give it an

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advantage over OMR1. Looking at the list, ASFA CD-ROM should have covered some journals like Nature and Marine Geology; for those journals, the issue may be ASFA's selection policy for marine geology, or, ASFA's inability to incorporate missed issues. However it was clear from this one search that OMR1 covers the marine geology literature much better than ASFA.

#### A Topic in Physical Oceanography

A search on a topic in physical oceanography, "geostrophic circulation", retrieved a total pool of 82 references from both CD-ROMs. Selected articles unique to OMR1 and missing from ASFA appeared in the following journals:

Continental Shelf Research 12(2/3):355+  
Dynamics of Atmospheres and Oceans 14(4):387+; 13(3/4):219+  
Geophysical and Astrophysical Fluid Dynamics 18(3/4):253+  
Journal of Geophysical Research 95(C3):3015+  
Journal of the Meteorological Society of Japan 67(6):949+  
Journal of Physical Oceanography 17(1):1925+; 17(12):2378+  
Oceanology 29(4):443+; 27(1):10+; 25(1):17+  
Progress in Oceanography 23(3):149+  
Soviet Journal of Physical Oceanography 1(6):417+  
Transactions (Doklady) of the USSR Academy of Sciences, Earth Science  
Section 311:3211+

OMR1 picked up a certain amount of Russian journals not covered by ASFA and also picked up lesser journals. ASFA was also good at picking up a certain amount of Russian journals not covered by OMR1, and, also picked up technical reports not found in OMR1. OMR1 did not have significant surprises in its omissions as did ASFA for this topic. ASFA did pick up references dating from 1980 and earlier from mainstream journals that were missing in OMR1; this was expected due to OMR1's timespan of coverage.

#### Two Topics in Biological Oceanography

A search on a topic in biological oceanography, "nutricline", retrieved a total pool of 30 references from both CD-ROMs. Both CD-ROMs covered a body of "nutricline" literature well. Disregarding pre-1980 literature, ASFA delivered a unique reference from a lesser journal. OMR1 picked up a significant omission from ASFA: Deep Sea Research 34(9A):1593+. In addition, OMR1 covered a monograph and technical report not covered by ASFA.

A search on another topic, "Kuroshio" and "plankton", retrieved a

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total pool of 90 references; ASFA was markedly a better place to search for references on the Kuroshio Current. While OMR1 did have several references, ASFA provided far more references from Japanese, Russian, Chinese, and Korean journals, monographs, and technical reports. Since ASFA has input centers in Japan, China, and Russia, this strength is not surprising and illustrates ASFA's merit in covering the literature of ocean waters nearby its input centers.

#### A Topic in Marine Biology

A search on a topic in marine biology, "Riftia", retrieved a total pool of 49 references from both CD-ROMs. Selected articles unique to OMR1 and missing from ASFA appeared in the following journals:

Archives of Biochemistry and Biophysics 228(2):617+  
Biological Bulletin 177(2):254+  
Bulletin of the Biological Society of Washington 6:411+; 6:289+  
[Hydrothermal vent monographic issue]  
Deep Sea Research 35(10/11A):1759+; 35(10/11A):1745+  
[Rose Garden hydrothermal vent monographic issue]  
Nature 293(5830):291+; 293(5834):609  
Science 224(4647):409+; 219(4582):295+; 213(4505):333+  
Scientific American 256(5):114+

Selected articles unique to ASFA and missing from OMR1 (though they were post-1980 articles) appeared in the following journals:

Applied and Environmental Microbiology 57(4):1082+  
Archives of Biochemistry and Biophysics 290(1):66+  
Biochimica et Biophysica Acta 829(1):27+; 670(2):255+  
Biological Bulletin 177(3):372+  
Comparative Biochemistry and Physiology 96B(4):753+  
Comptes Rendus Hebdom. Seances Acad. Sci. III 302:503+  
Journal of Molecular Biology 221(1):209+  
Marine Biology 83(2):109+  
Marine Biology Letters 5(1):171+  
Marine Ecology Progress Series 34(3):267+  
Proceedings of the Biological Society of Washington 93(4):1295+

The marine biology literature is published in a wide range of journals in biological science. It is clear from these results that ASFA casts a wider net than OMR1 in covering the marine biology literature. OMR1 appears to be much more selective than ASFA in covering marine biology articles, even those published within titles known to have marine biology articles. In addition to the journals above, ASFA picked many more unique items: a thesis, a dissertation, conference abstracts and proceedings, Russian journals, and, book chapters. Cambridge produces

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several other abstracting journals/databases in life sciences, thereby monitoring a larger amount of source material than would the contributors to OMR1.

#### A Topic in Marine Pollution

A search on a topic in marine pollution, presence of tributyltin or organotin in estuarine sediments, retrieved a total pool of 41 references from both CD-ROMs. This search was executed as "(tributyltin or organotin) and estuar\* and sediment\*", with the words being limited to subject-oriented fields in ASFA (title, abstract, descriptor). References unique to OMR1 and missing from ASFA appeared in the following journals:

Analytical Chemistry 61:2320+

Applied Organometallic Chemistry 3:267+; 2:523+; 1:541+

Environmental Technology Letters 10(10):901+

International Journal of Environmental Analytical Chemistry 35:161+

In addition, OMR1 had a monograph chapter and three conference papers from Oceans '87 [4:1348; 4:1364+; 4:1381+] that were not in ASFA. It appears that OMR1 casts a broader net than ASFA in covering chemistry journal articles relevant to marine pollution.

References unique to ASFA and missing from OMR1 came from a conference proceedings, a US Geological Survey Water Resources Division Report, a dissertation, and five references that predated OMR1's 1987+ Plymouth-contributed coverage. These five pre-1987 references consisted of three papers from conference proceedings and two journal articles. ASFA's coverage within this pool of references was excellent, with no missed issues from journals covered by OMR1. ASFA covers the pre-1987 marine pollution literature better than OMR1 since OMR1's coverage principally dates back to 1987.

#### Coverage of SCIENCE during 1990

Both CD-ROMs were searched for references to articles appearing in Science during 1990 in order to determine selection differences. ASFA had references to twelve marine biology and marine zoology research articles that were not in OMR1. OMR1 had references to many items that appeared in Science's "Letters", "News & Comment", "Research News", and "Articles" sections; these sections were not covered by ASFA.

#### Conclusions

ASFA has known strengths in fisheries and aquaculture and a pre-1980 edge in retrospective coverage in general. ASFA appears to have very good coverage of marine pollution literature and predates OMR1's coverage of marine pollution by ten years. ASFA appears to have significantly better coverage of marine biology than OMR1, especially of the type of marine biology involving physiological and cellular work. ASFA can be expected to have better coverage of the oceanographic literature of those countries for which it has input centers. For some institutions, the presence of freshwater-related records comprising roughly 25% of ASFA may be an additional advantage over OMR1. ASFA is updated quarterly whereas OMR1 is updated semiannually. ASFA has abstracts for every record in its database whereas OMR1 does not. The presence of an abstract for every record enhances the ability to retrieve references by presenting more words for searching. In the author's experience, users love the availability of abstracts and this strength of ASFA is very considerable compared to OMR1. In addition, ASFA has consistent indexing whereas OMR1 does not.

It is clear from several of these searches that ASFA has a problem covering journal issues that were initially missed in receipt. In his 1989 IAMSLIC paper, Tapaswi (Tapaswi 1990) documented this thoroughly for the 1982-1984 issues of *Journal of Physical Oceanography*, *Limnology and Oceanography*, *Marine Geology*, and, *Estuarine Coastal and Shelf Science*. OMR1 had very few surprises of this nature from most of these pools of references except for marine biology which may be due to selection criteria. It appears that OMR1 may be more reliable in covering all of the issues of core oceanographic journals; however further analysis is necessary in order to make a definitive statement (Markham 1992). This strength of OMR1 in covering all journal issues may be due to the UK marine science libraries who are contributing records from journals that they receive for their collections. Libraries that are building complete journal collections may be more committed to tracking down missing journal issues than a commercial vendor not building a journal collection. Cambridge could serve the information needs of the oceanographic community well by engaging in an ongoing retrospective project to fill in coverage of missing back issues from the major journals of oceanography.

Aside from OMR1's apparent greater reliability in covering core oceanographic journals, OMR1's coverage of marine geology appears to be much better than ASFA. OMR1 appears to have stronger coverage of marine pollution since the late 1980s, as noted in the additional references from environmental technology and chemistry journals. However OMR1's apparent stronger coverage of marine pollution comes without abstracts whereas ASFA's coverage is apparently very good and does provide abstracts. OMR1's lack of abstract for every record

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makes creative searching especially imperative since there are fewer words per reference available for searching. OMR1's separate indexing schemes for each database will be problematic for those wishing to search with the guidance of a thesaurus.

It is impossible to say that one database is better than another because it depends on what an institution is looking for in a database. Both databases have their strengths and weaknesses. Knowing the clientele's information needs and preferences will assist in making a decision. Price is certainly a major difference between the two. Attempting to make an either/or selection decision for two very useful CD-ROM databases leads to one obvious conclusion. A merged ASFA/OMR1 database would be an excellent product for those institutions that could afford a higher price for improved coverage than either CD-ROM provides by itself. A vendor could process ASFA and OMR1 records to identify duplicates and create composite records, thereby retaining unique indexing schemes and other bibliographic elements. This combined database could be produced on CD-ROM and also on magnetic tape. For some institutions, it may be worth a higher price to achieve more comprehensive coverage of the oceanographic literature.

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