SCIENTOMETRICS AND RELEVANT BIBLIOGRAPHIC DATABASES IN THE FIELD OF AQUACULTURE

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Abstract

An inventory of the world's most important aquacultural and piscicultural (including aquatic biology and water sciences) databases, relevant for authors, editors and librarians, is presented in this synthesis. ISI Web of Knowledge and Scopus Elsevier continue to rule in scientometrics and establish the global academic ranking. However, Google Academic is growing fast as a serious competitor. We discuss also on the important error observed among Romanian academics in terms of understanding of what ISI Web of Knowledge really means. According to Thomson Reuters, an ISI indexed journal is an academic serial indexed in WoK and/or Master Journal List. According to Romanian legislation, an ISI indexed journal equals to journal indexed in Web of Science. The confusion derives from the overlapping of WoK with WoS in Romania due to Romanian partial subscription (by ANELIS Program) to Thomson for WoS only (excluding satellite databases present in WoK, e.g. CABI, Zoological Record, Biosis, due to the lack of funds needed for WoK full option). In fact ISI Web of Knowledge is much larger than WoS.

Key words: aquaculture, bibliographic databases, scientometrics, impact

INTRODUCTION

We live in the age of digitization [5]. An inventory of the world's most important aquacultural and piscicultural (including aquatic biology and water sciences) databases, relevant for authors, editors and librarians, is presented in this synthesis.

MATERIAL AND METHOD

We used top journals and books, empirically assessed through our aquacultural experience, and their indexing and abstracting data in order to detect what is a database relevant to aquaculture. Such databases were studied individually: specific products, services, policies of journal or book evaluation, and cooperation with similar databases, were considered in this view. A general view of these databases according to global scientometric trend, but also according to tradition, was taken in consideration.

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RESULTS AND DISCUSSIONS

In terms of scientometrics (bibliometrics), three major databases or group of databases rule the global ranking of the scientific publications, authors, universities or research organizations (directly or indirectly).

First by tradition is ISI Web of Knowledge (WoK), a Thomson Reuters platform, having a central scientometric database: Journal Citation Reports (JCR). JCR calculates the Journals Impact Factors (JIF) using selected data from Web of Science (WoS). WoS is made of several important databases: Social Science Citation Index, Science Citation Index Expanded, Arts and Humanities Citation Index, Book Citation Index but includes also several databases of proceedings from various fields. WoK includes also secondary (own) databases such as: Zoological Record, Biosis *sensu stricto*, Current Contents with multiple series (see Fig. 1), Index Chemicus etc. Besides, WoK incorporates also satellite databases (non-self databases) such as CABI (with two major sub-databases: Cab Abstracts and Global Health), Medline (a PubMed - NLM product) and others (Fig. 1).

According to JCR, in a given year, the JIF of a journal is the average number of citations

received per paper published in that journal during the two preceding years. Besides the two years JIF, JCR calculates numerous other impact indices: the five years JIF, the immediacy index, the cited half-life. Together with Washington University, JCR calculates also the Article Influence Score (AIS) and Eigenfactor.

Second by prestige, but the largest critical group of databases, is Elsevier Products due to their scientometric database Scopus (Fig. 1). Scopus (Sciverse) publishes twice a year two major impact indices: Scimago Journal Rank (SJR) and Source Normalized impact per paper (SNIP). SJR is calculated in cooperation with Scimago Lab (Spain) while SNIP is calculated in cooperation with University of Leiden (Netherlands).

Developed by Félix de Moya, SJR is a prestige metric based on the idea that 'all citations are not created equal'. With SJR, the subject field, reputation and quality of the journal have a direct effect on the value of a citation. The SJR value is a measure of scientific influence of scientific journals that accounts for both the number of citations received by a journal and the importance of the journals where such citations come from. SJR is a kind of the eigenvector centrality measure used in network theory. Such measures establish the importance of a node in a network based on the principle that connections to high-scoring nodes contribute more to the score of the node. The SJR indicator, which is inspired by the Google PageRank algorithm, was developed for extremely large and various journal citation networks. It is a size-independent indicator and it ranks journals by their 'average prestige per article' and can be used for journal comparisons in scientific evaluation [1, 3]. It is freely available online (see Figs 3-4) [8].

Created by Henk Moed, SNIP measures contextual citation impact by weighting citations using the total number of citations in a subject field. The impact of one citation is given higher value in subject areas where citations are less frequent, and vice versa. SNIP is defined as being the ratio of a journal's citation count per item and the citation potential in its subject field. It aims to allow direct comparison of sources in very different subject fields; SNIP corrects for such differences [1].

SNIP provides alternative values that bibliometricians can use to create more refined and objective analyses, including measuring the quality of the research output of universities (research performance) and helping governments and universities allocate research funding [1].

SNIP helps editors evaluate their journal and it can also help all academics identify which journals are performing best within their domain so they know where to submit [1].

Both Thomson Reuters and Scopus Elsevier pay equal attention to both journal and author metrics.

Although poor structured, the third great database in terms of bibliography and bibliometrics is Google Scholar. Like Thomson and Scopus, Google also evaluate authors, journals or other type of documents. At the author level, Google Academic counts the total citation of an author, calculates the h-index and the i10-index. A scientist has index h if h of his/her Np papers have at least h citations each, and the other (Np − h) papers have no more than h citations each (where, Np=number of papers published) [4]. The i10-index indicates the number of academic publications an author has written that have at least ten citations from others [2]. In terms of journal metrics, Google Academic assigns journals indexed two values: the h5-index and the h5-median. h5-index is the h-index for articles published in the last five complete years. It is the largest number h such that h articles published in the last five years have at least h citations each. h5-median for a publication is the median number of citations for the articles that make up its h5-index [2].

Thomson, Scopus and Google ranking systems are the most accepted in academic ranking worldwide, in different fields of activity, including Aquaculture and related. However, there are few more institutions and databases involved in scientometrics (Fig. 1).

Index Copernicus, for instance, elaborates the Index Copernicus Value (ICV), using a large number of criteria: impact factors (see Thomson), number of indexes in other databases, download factor, paper quality, editorial content, number of items, number of pages, editorial management, language of publication, environmental aspects related to publishing and many others.

Mendeley is particularly original in its metrics: it posts the number of readers at the article level and journal level [5].

Another type of metrics for serials is the number of databases indexing and/or abstracting a journal. There are relevant databases for each specific domain or sub-domain. For Aquaculture and close related fields, besides WoS, JCR and Scopus, important are also Biosis, Zoological Record, CABI, Medline, EBSCO, Ulrich's, Serials Solutions, NSDL, Ovid LinkSolver, Engineering Village, Biobase, Embase and the well known open access digital libraries DOAJ, Socolar and Mendeley.

For journals, Medline is a "gate" to both WoK and Scopus, while Biosis, Zoological Record and CABI are "gates" to WoK (by full content delivery). Some of the "powerful" databases have agreements with third parties and spread better the journals content. This is the case of CABI which delivers its content to various databases such as: WoK, Datastar, Dimdi, Ovid LinkSolver, Dialog etc.

Open access databases, such as DOAJ, deliver their content to other several tens or hundreds of digital libraries and/or university libraries worldwide so that indexing to DOAJ is the first step of an open access journal to the true open access state [6].

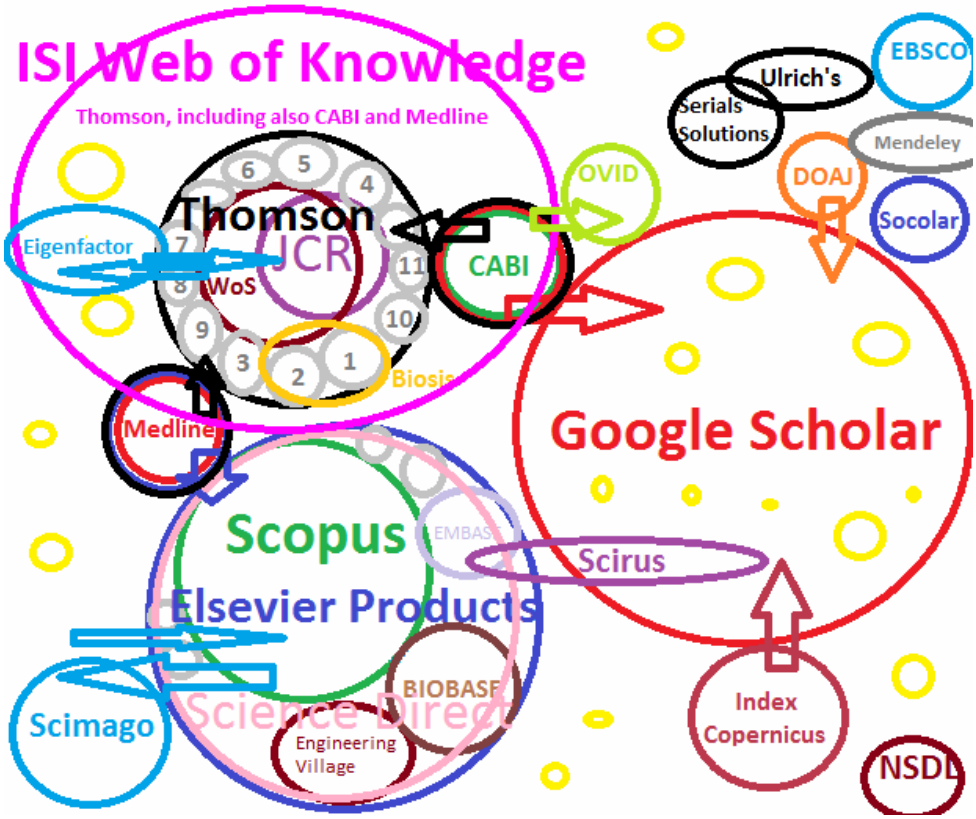


Fig. 1 Relevant scientometric and bibliographic databases to the field of Aquaculture. Abbreviations: 1)Biosis, 2)Zoological Record as part of Biosis, 3)Index Chemicus 4)Current Contents Agriculture, Biology & Environmental Sciences, 5)Current Contents Social & Behavioral Sciences, 6)Current Contents Life Sciences, 7)Current Contents Clinical Medicine, 8)Current Contents Physical, Chemical & Earth Sciences, 9)Current Contents Collections - Business Collection, 10)Current Contents Engineering, Computing & Technology, 11)Current Contents Collections Electronics & Telecommunications Collection

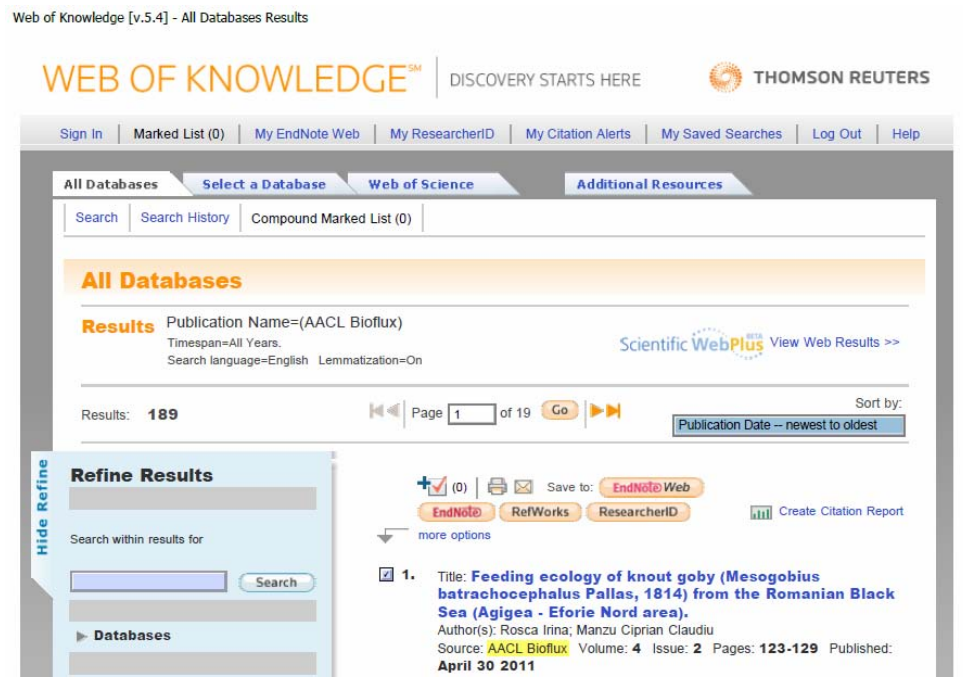


Fig. 2 Example of journal included in ISI Web of Knowledge via Zoological Record and CABI

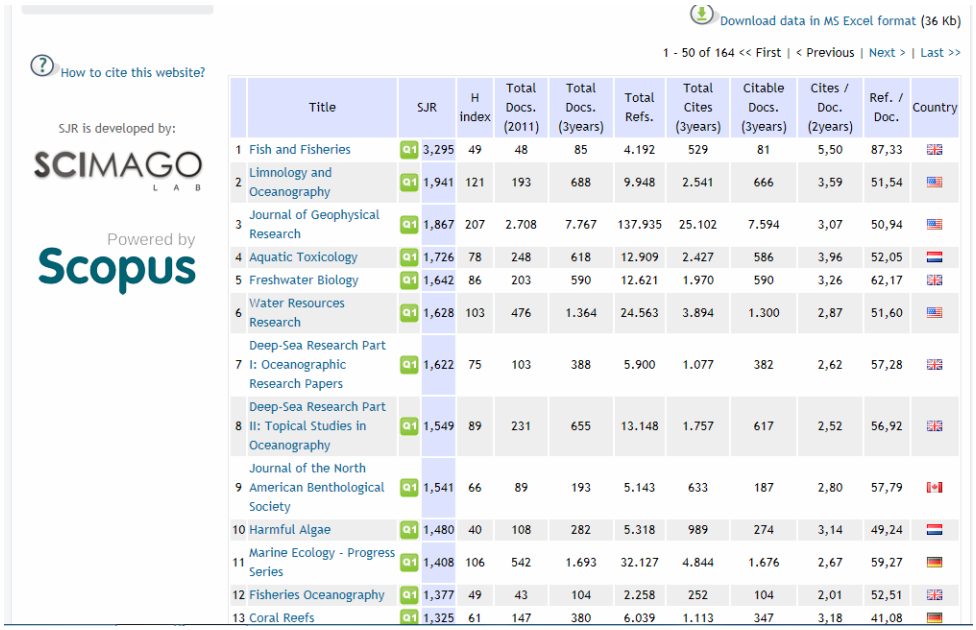
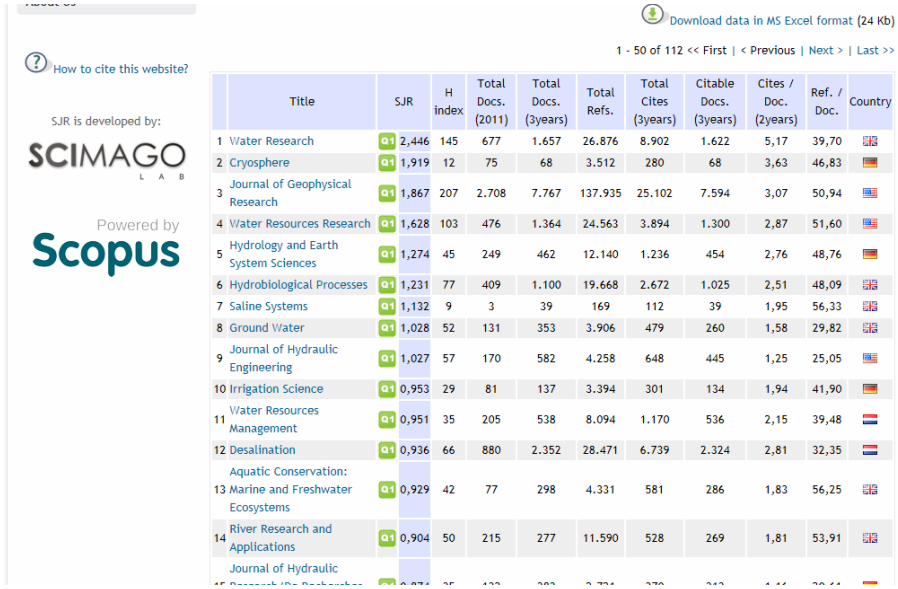


Fig. 3 Scimago Journal Rank: Aquatic Science.



How to cite this website?

SJR is developed by:

SCIMAGO LAB

Powered by Scopus

Download data in MS Excel format (24 Kb)

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	Title	SJR	H index	Total Docs. (2011)	Total Docs. (3years)	Total Refs.	Total Cites (3years)	Citable Docs. (3years)	Cites / Doc. (2years)	Ref. / Doc.	Country
1	Water Research	Q1 2,446	145	677	1.657	26.876	8.902	1.622	5,17	39,70	
2	Cryosphere	Q1 1,919	12	75	68	3.512	280	68	3,63	46,83	
3	Journal of Geophysical Research	Q1 1,867	207	2.708	7.767	137.935	25.102	7.594	3,07	50,94	
4	Water Resources Research	Q1 1,628	103	476	1.364	24.563	3.894	1.300	2,87	51,60	
5	Hydrology and Earth System Sciences	Q1 1,274	45	249	462	12.140	1.236	454	2,76	48,76	
6	Hydrobiological Processes	Q1 1,231	77	409	1.100	19.668	2.672	1.025	2,51	48,09	
7	Saline Systems	Q1 1,132	9	3	39	169	112	39	1,95	56,33	
8	Ground Water	Q1 1,028	52	131	353	3.906	479	260	1,58	29,82	
9	Journal of Hydraulic Engineering	Q1 1,027	57	170	582	4.258	648	445	1,25	25,05	
10	Irrigation Science	Q1 0,953	29	81	137	3.394	301	134	1,94	41,90	
11	Water Resources Management	Q1 0,951	35	205	538	8.094	1.170	536	2,15	39,48	
12	Desalination	Q1 0,936	66	880	2.352	28.471	6.739	2.324	2,81	32,35	
13	Aquatic Conservation: Marine and Freshwater Ecosystems	Q1 0,929	42	77	298	4.331	581	286	1,83	56,25	
14	River Research and Applications	Q1 0,904	50	215	277	11.590	528	269	1,81	53,91	
	Journal of Hydraulic										

Fig. 4 Scimago Journal Rank: Water Science and Technology.

CONCLUSIONS

ISI Web of Knowledge and Scopus Elsevier continue to rule in scientometrics and establish the global academic ranking. However, Google Academic is growing fast as a serious competitor.

Finally, it seems important to underline the great error observed among Romanian scientists in terms of understanding of what ISI Web of Knowledge really means. According to Thomson, an ISI indexed journal is an academic serial indexed in WoK and/or Master Journal List. According to Romanian legislation [7], an ISI indexed journal equals to journal indexed in Web of Science. The confusion derives from the full overlapping of WoK with WoS in Romania due to the Romanian partial subscription (by ANELIS Program) for WoS (excluding satellite databases present in WoK, e.g. CABI, Zoological Record, Biosis, due to lack of funds). In fact ISI Web of Knowledge is much larger than WoS (see an example in Fig. 2).

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