Scientometric Study of the Research Performance on Fishery: The Indian Perspective

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Abstract

This paper attempts to analyze quantitatively the growth and development of Fishery Research in India in terms of publication output as reflected in Web of Science database (SCI) for the period, 2011 to 2016. Fishery researchers published a total of 1373 papers during the period. The study suggests that Fishry research in India is still in its infancy.

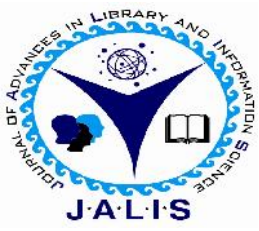
Keywords

Literacy, information and communication technology, University Libraries.

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Electronic access

The journal is available at www.jalis.in



Journal of Advances in Library and Information Science
ISSN: 2277-2219 Vol. 5. No.2. 2016. pp.337-341

Introduction

Scientometric study is describes the output traits in terms of organizational Research structure, resource inputs and outputs, develops benchmarks to evaluate the quality of information output. Scientometric studies characterize the disciplines using the growth pattern and other attributes. These studies have potential particularly in assessing the emerging disciplines. Thus, Scientometric Study of Research Performance of Fishery has potential and enables the users to get an understanding the structure of it.

About Fishery

Generally, a **fishery** is an entity engaged in raising or harvesting fish which is determined by some authority to be a fishery. According to the FAO, a fishery is typically defined in terms of the "people involved, species or type of fish, area of water or seabed, method of fishing, class of boats, and purpose of the activities or a combination of the foregoing features". The definition often includes a combination of fish and fishers in a region, the latter fishing for similar species with similar gear types. The term fish is used as a collective term, and includes mollusks, crustaceans and any animal which is harvested.

Review of Literature

Hosmani,S.C., & Bagalkoti, V.T. (2016) analyses the contributions of Indian chemistry literature in publishing in the period 199 – 2013 , this study has grown steadily during the period, articles play a predominant source of publication for chemistry literature and chemistry research of India is fairly collaborative. Chaman Sab, M., Dharani Kumar, P, & Biradar, B.S. (2016) identified with the help of Web of Science (WoS) the growth of crystallography literature year wise, authors, document types, institutions involved, and international collaboration linkages. The highest number of articles was published in the year 2011 (1074). Most of articles are published in English language, most of the publications published in form of research articles. Chaman Sab, M., Dharani Kumar, P, & Biradar, B.S. (2016) This study adopts a scientometric approach to quantitatively assess current research trends in Indian and South Korean research performance in chemical engineering, it analyses scientific papers published during 2011 to 2015. Its focuses on countries global publication share, growth rate, citation quality, international collaborative publications share, using 5

years data from the web of science database. Neelamma and Gavisidappa Anandhalli (2015) identified with the help of Web of Science (WoS) the most of the research publications are published in English language and most of the publications published in the form of research articles; China is the highest contributor to the field of Crystallography. Prakash Kumar & Nirmala Biradar (2015) studied the various bibliometric components of the research articles published in forensic science in the period of 2001 – 2015. The various bibliometric components of the 2108 research records published in the study period were studied.

Scope And Methodology

These applications are extremely valuable methods for evaluating research output, to know about the author productivity and citation analysis in science and technology. Scientometric tools can be used to measure and describe countries, universities, research institutes, journals, specific research topics and specific disciplines. This paper focuses on quantitative study of Indian Fishery research by applying simple scientometric techniques. 3.1. Web of Science (previously known as (ISI) Web of Knowledge) is an online subscription-based scientific citation indexing service maintained by Thomson Reuters United States that provides a comprehensive citation search. It gives access to multiple databases that reference cross-disciplinary research, which allows for in-depth exploration of specialized sub-fields within an academic or scientific discipline. Records dept in Citation indexing, author, topic title, subject keywords, abstract, periodical title, author's address, publication year and it also format coverage full text articles, reviews, editorials, chronologies, abstracts, proceedings (journals and book-based), technical papers.

Objectives of the Study

The main objective of the study is to present the growth of literature and make the quantitative assessment of status of researchers in Tsunami in India by analyzing the various features. The specific objectives are:

1. To identify and analyse the rate of growth of research productivity;
2. To study the Bibliographical form wise distribution of the articles;
3. To identify the Language wise distribution of the articles;
4. To identified the subject wise distributions of articles.
5. To identify the highly productive journals;
6. To assess the institution wise research concentration; and
7. To identify country wise collaborative distribution of publications and high cited-papers.

ANALYSIS AND DISCUSSION

1 Year-wise Distribution of Research Output in Fishery

Table shows the growth of research publications published in science online database during study period of 2011-2016. The highest number of articles 258 (18.791%) was published in the year of 2013, while lowest number of of research articles was published 195 (14.202%) in the year 2016. The second highest number of articles was published in the year 2012 (250, 18.208%)

Table 1 Showing Year-wise Distribution of Research Output in Fishery

Sl. No	Years	Total Public-ations	%	Cumulative Publications	Cumulative % of Publications
1	2011	217	15.805	217	15.805
2	2012	250	18.208	467	34.013
3	2013	258	18.791	725	52.742
4	2014	227	16.533	952	69.275
5	2015	226	16.46	1178	85.735
6	2016	195	14.202	1373	100
	Total	**1373**	**100**		

2 Bibliographical form wise of Research Publications

Table – 2 Study finds the form wise distribution of fishery during the period of 2011 – 2016. A total of 1373 records were published, out of which most of the records in fishery are published in the form of research articles 1303 (94.902%). The remaining records are published in other forms like Review 38 (2.768%), Meeting Abstracts 21(1.529%), Correction 06 (0.437%), Editorial Material 04 (0.291%), and Letters 1 (0.073%).

Table 2. Bibliographical form wise of Research Publications

Sl.No	Document Types	Records	%
1	Article	1303	94.902
2	Review	38	2.768

3	Meeting Abreact	21	1.529
4	Correction	6	0.437
5	Editorial Material	4	0.291
6	Letter	1	0.073
	Total	**1373**	**100**

3. Language wise distribution of the articles;

The most of research articles 1373 (100%) in the field of Fishery sciences were published in English language only. It is because of the fact that English language is an international language.

4. Subject wise distribution of the publications

The Fishery has produced total 2366 publications in subfield and including with fishery. The Web of Science classified fishery 1373 (58.03), Marine Freshwater Biology 445 (18.8) , Veterinary Science 204 (8.622), Immunology 156 (6.6), Psychology 76 (3.212), Biochemistry Molecular Biology 76 (3.212) and Zoology 19(0.8) and so on table.

Table: 4. Subject wise distribution of the publications

Sl.N	Research Areas	Records	%
1	Fisheries	1373	58.03
2	Marine Fresh Water Biology	445	18.8
3	Veterinary Science	204	8.622
4	Immunology	156	6.6
5	Physiology	76	3.212
6	Biochemistry Molecular Biology	76	3.212
7	Zoology	19	0.8
8	Agriculture	8	0.33
9	Oceanography	6	0.25
10	Business Economics	2	0.08
11	Geology	1	0.042
	Total	**2366**	**100**

5. Highly productive journals

One of the important bibliometric techniques used in identifying core journals in a discipline has been citation analysis "Citation are the formal explicitly linkages between publications that have particular points in common (Garfield, 1979). The major leading journals preferred by the scientist are journals of Indian Journal of Fisheries with 514 papers (37.436%), Fish Shellfish Immunology with 156 papers (11.362%), Aquaculture with 107 (7.79%), Aquaculture Research with 89 papers (5.535%) and others 38 papers (2.768%), the following table shows the top ranking journals during the period study period.

Table: 5. Highly productive journals

SlN	Source Titles	Records	%
1	Indian Journal of Fisheries	514	37.436
2	Fish Shellfish Immunology	156	11.362
3	Aquaculture	107	7.793
4	Aquaculture Research	89	6.482
5	Fish Physiology and Biochemistry	76	5.535
6	Journal of Applied Ichthyology	62	4.516
7	Aquaculture International	58	4.224
8	Israeli Journal of Aquaculture-Bamidgeh	57	4.151
9	Turkish Journal of Fisheries and Aquatic Sciences	46	3.35
10	Aquaculture Nutrition	28	2.039
11	Journal of Fish Diseases	27	1.966
12	Acta Ichthyologica et Piscatoria	19	1.384
13	Reviews in Fish Biology and Fisheries	17	1.238
14	Diseases of Aquatic Organism	17	1.238
15	Journal of the World Aquatic Society	14	1.02
16	Journal of Fish Biology	13	0.947
17	Iranian Journal of Fisheries Science	10	0.728
18	Fisheries Research	9	0.655
19	Reviews in Aquaculture	8	0.583
20	Aquaculture l Engineering	8	0.583
21	Others	38	2.768
	Total		**100**

6. Institution Wise Distributions of publications

Although 231 Institutions have published the articles in Fishery, only 20 Institutions have published more than 2003 papers in the study period. Central marine fisheries research institute Kochi is top leading research institutions with 217 (15.732%), publications followed by Central Institute of

Fisheries Education Mumbai 132 (9.614%), and remaining all institutions are following figure shows that top most productive intuitions in Fishery field.

Table: 6. Institution Wise Distributions of publications

SlN	Organizations	Records	%
1	Central marine fisheries research institute	216	15.732
2	Central institute fisheries education	132	9.614
3	Central institute freshwater aquaculture	72	5.244
4	National bur fish genet resources	49	3.569
5	Central Institute of Brackishwater Aquaculture	47	3.423
6	Bharathidasan University	44	3.205
7	Indian Council of Agricultural Research	41	2.986
8	Cochin University of Science and Technology	41	2.986
9	SRM University	37	2.695
10	ICAR Central Marine Fisheries Research Institute	37	2.695
11	Central Institute of Fisheries Technology	35	2.549
12	Aligarh Muslim university	34	2.476
13	Karnataka Veterinary Animal And Fisheries Sciences University.	29	2.112
14	Annamalai University	29	2.112
15	Central Inland Fisheries Research Institute	28	2.039
16	Directorate Coldwater fisheries research	26	1.894
17	Central Agricultural university	26	1.894
18	Jeju National University	22	1.602
19	University of Delhi	19	1.384
20	ICAR Central Institute of Fisheries education	19	1.384

7. International Collaboration

Table depicts the international collaborative papers of India with 10 countries during 2011 – 2016. The share international publications in the Indian Fishery research output was among the different collaborative countries the South Koerea ranked first with 42 publications and (20.59%) of total output, USA which ranked second with 30 (14.705%) publications, Japan ranked third with 27 (13.23%) publications, followed by Malaysia 25 (12.23%), Australia 19 (9.31%) publications, Norway 17 (8.33%) publications, Saudi Arabia 13 (6.34%) publications, Thailand 11 (5.4%) publications, Belgium 11 (5.4%) publications and South Africa 9 (4.41%) publications.

Table: 7. International Collaboration

S.N	Countries/Territories	records	% of 1373
1	South Korea	42	20.59
2	USA	30	14.705
3	Japan	27	13.23
4	Malaysia	25	12.25
5	Australia	19	9.31
6	Norway	17	8.33
7	Saudi Arabia	13	6.34
8	Thailand	11	5.4
9	Belgium	11	5.4
10	South Africa	9	4.41
		204	100

Conclusion

It is important to evaluate the research performance of major Fishery research of the country and to compare their performance among themselves and similar institutes of other countries. The present study analyses the growth of literature published by the researchers in India for 2011 to 2016 as reflected in Web of Science (WoS) database. India has produced 1373 publications during the period. This study presented a summary of Scientometric research in the Fishery area. Using publication of literature, an overview of Scientometric efforts have been presented to trace the emergence of this new technological area. The paper has also presented data that gives an idea about which countries are the most active in terms of scientific publications in fishery. Finally it is concluded that the result of a Scientometric study that focuses on the field of fishery and the collaboration among authors, institutions and countries of Indian fishery literature has been gradually increased year by year.

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