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## Bibliometric Analysis of Source Wise Research Productivity on Fish and Fishing Industry Global Level

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#### Abstract

*This paper aims at quantifying the productivity of research literature concerning the fish research with a focus on Fish and Fishing industry. Productivity and impact were measured by analysing of source wise articles from ASFA database, spanning the period 1980–2009 by counting and measuring, the publication output which is called as Bibliometrics analysis. A total of 210348 bibliometric entries were extracted from the above database at global level during the study period. The most productive source was journal articles and next was achieved by conference articles followed by Book sources*

#### Keywords

Bibliometrics, Scientometrics, Fish and Fishing.

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## INTRODUCTION

Fish and fishery products are in the forefront of seafood and they are among the most internationally traded food commodities. In 2001, fish trade amounted to US\$ 54 000 million, of which approximately 50 percent originated in developing countries. Understanding about fish and fishing industry research provides quantitative assessment of scientific published communication on its research.

## FISH AND FISHING INDUSTRY

Increasing benefits from this Fish resource is very important for increasing food supplies, especially as capture fisheries are on the decline. Development of rural communities, raising standards of living, employment and improving infrastructure facilities are play an important role in the economic development. Prospects for development and the opening up of more investment opportunities to narrow the gab of food supplies are possible in several areas but several challenges have to be met to achieve this objective. While the overall fish resources in the international scene consist their economies and they are largely dependent on this natural resource, and fisheries are considered a very important economic activity especially in the traditional countries where it provides employment, food, and a source of income from the various activities associated with the fisheries industry.. With this background, and in order to increase the benefits of the industry in terms of identifying and providing the result of research in this sector will help to increase in the future of these countries of the region.

It is essential to say that if rationally and scientifically exploited, fisheries could play an important role in meeting increased demand for food in the region and in spearheading the national economies of several countries. It is essential to say that if rationally and scientifically exploited, fisheries could play an important role in meeting increased demand for food in the region and in spearheading the national economies of several countries.

This paper reviews the areas that offer good potential for development as well as highlighting the various possibilities in which new investments may be injected from private, national, regional and international sources with the general intention of development of fisheries from capture and aquaculture sector in the Arab region and reviews the

challenges ahead for sustainable fisheries development.

## **BIBLIOMETRICS**

Bibliometrics has become a standard tool of science policy and research management in the last decades. In addition, many extensive bibliometric studies of important science fields appeared during the last two decades. Aim of these studies was to measure national research performance in the international context or to describe the development of a science field with the help of bibliometric means for instance, Braun et al., (1987). Bibliometrics is usually defined as the application of mathematical and statistical methods to the entire scientific literature, books and documents included (Pritchard, 1969). It has become

a generic term for a range of approaches directed at quantifying output levels, collaboration patterns and impact characteristics of scientific research (OECD, 1997). The advantage of bibliometric data on research documents is that they have great informative value. When authors publish they tell what they are doing, with whom they did it, when and where it was done. These literature-based measures enable systemic comparisons of scientific performance of institutions, countries and regions across a range of scientific fields (e.g. May, 1997). Shari, et al., (2012) applied bibliometric and webometric methods to publications and web sites affiliated with Malaysian institutions.

## **METHODOLOGY**

The brief for the study envisaged documentation of baseline data focused on the quantification of Fish research impacts of source wise research productivity during 1980 to 2009. Particular publication is attributed to a country or an institution if any of its authors is coming from that country or institution, respectively. The database was analysed to determine the source wise research article that were the productive from 1980 to 2009. The world Fish research output have been grouped into eight broad categories or sources from which they have been culled such as Book and Bibliography, Journal

articles, Conference, Summary ,Numerical data, Report and Thesis . Furthermore, the survey has been restricted to articles containing the topic fish research and fishing industry.

## **DATA COLLECTION**

The data was collected from ASFA database. Further, the bibliographical details of the publications of fish and fishing industry consist of Book and Bibliography, Journal articles, Conference, Summary ,Numerical data, Report and Thesis sources . The contribution of fish and fishing research covered by ASFA database and papers published from addresses in International were downloaded from the above databases. For analysis all papers published during 1980-2009 were considered.

## **AQUATIC SCIENCES AND FISHERIES ABSTRACTS (ASFA)**

"ASFA" is an acronym of Aquatic Sciences and Fisheries Abstracts, the premier abstracting & indexing database in aquatic science. ASFA is a component of the Aquatic Sciences and Fisheries Information System (ASFIS), formed by four United Nations agency sponsors of ASFA and a network of international and national partners, all of whom supply information. Thirty-five national research centers throughout the world also contribute to the database. Collectively, the UN, National and International Partners are known as ASFA Input Centers. More than 5,000 Serial publications, books, reports, conference proceedings, translations and limited distribution literature are selected for abstracting and indexing in ASFA. Although primarily they are in the English language, publications represent over 40 other languages from around the world.

## **Source wise output at International level**

The study has taken into account a total of 210348 publication output on Fish research and fishing industry at world wide during the period under examination 1980-2009.

**Table – 1: Source wise distribution of fish and fishing industry research out put at International level**

Sl.no	Subject	No. of Article	Percentage	Cumulative Article	Cumulative Percentage
1	Books	34848	16.57	34848	16.57
2	Bibliography.	6937	3.30	50895	24.20
3	Journal-articles	110941	52.74	161836	76.94
4	Conferences	43958	20.90	196684	93.50
5	Summary	6187	2.94	202871	96.45
6	Numerical-data	5360	2.55	208231	98.99
7	Reports	1281	0.61	209512	99.60
8	Theses	836	0.40	210348	100.00
	<b>Total</b>	210348	100.00		

**Year wise and Source Wise Published Research out put at International level**

The following table shows year wise and the sources wise consist/distribution of Book , Bibliography,

Journal articles, Conference, Summary ,Numerical data, Report and Thesis sources research productivity in year wise.

**Table – 2 : Distribution of source wise published research out put at at International level**

SL.No	Year	Books	Bibliography	Journals	Conference	Summary	Numerical data	reports	Theses	Total
1	1980	2060	201	2375	937	76	41	16	10	5716
2	1981	2113	217	3597	601	86	49	18	12	6693
3	1982	2229	224	3778	616	60	75	12	8	7002
4	1983	2381	241	3347	1142	78	127	16	11	7343
5	1984	2440	259	3384	1012	88	124	18	12	7337
6	1985	1541	278	2906	1193	106	139	22	14	6199
7	1986	760	299	1804	272	201	149	42	27	3554
8	1987	20	17	604	119	4	8	8	5	785
9	1988	1641	349	4493	2279	295	167	40	26	9290
10	1989	2063	399	4155	2364	298	154	41	27	9501
11	1990	2162	400	3874	2825	216	184	45	29	9735
12	1991	1241	547	5646	2404	220	175	46	30	10309
13	1992	1221	243	4883	2835	217	188	45	29	9661
14	1993	1120	223	6166	2380	199	272	41	27	10428
15	1994	1143	228	6039	2309	259	276	54	35	10343
16	1995	1140	227	5129	2827	258	175	53	35	9844
17	1996	161	231	1692	886	262	178	54	35	3499
18	1997	1180	235	6476	2790	289	233	43	28	11274
19	1998	1161	231	6343	3066	206	130	43	28	11208
20	1999	1120	223	6541	1256	199	123	41	27	9530

21	2000	760	151	5702	1958	135	117	28	18	8869
22	2001	841	167	2674	1407	149	129	31	20	5418
23	2002	960	191	6056	2264	115	148	24	16	9774
24	2003	720	143	3052	1908	128	233	26	17	6227
25	2004	61	147	674	152	76	77	36	24	1247
26	2005	410	352	717	134	296	187	61	40	2197
27	2006	120	84	1637	511	353	272	73	48	3098
28	2007	519	104	1656	564	427	324	88	58	3740
29	2008	720	143	2296	238	407	416	84	55	4359
30	2009	840	183	3245	709	484	490	132	85	6168
	<b>Total</b>	34848	6937	110941	43958	6187	5360	1281	836	210348

The growth in fish and fishing industry has been observed as a gradual increase year after year. Publication output has not been uniform throughout the study period. It continued very slowly and study growth rate. After 1997 up to 2002 a gradual decreasing trend can be observed. After that publication increased in a phase manner.

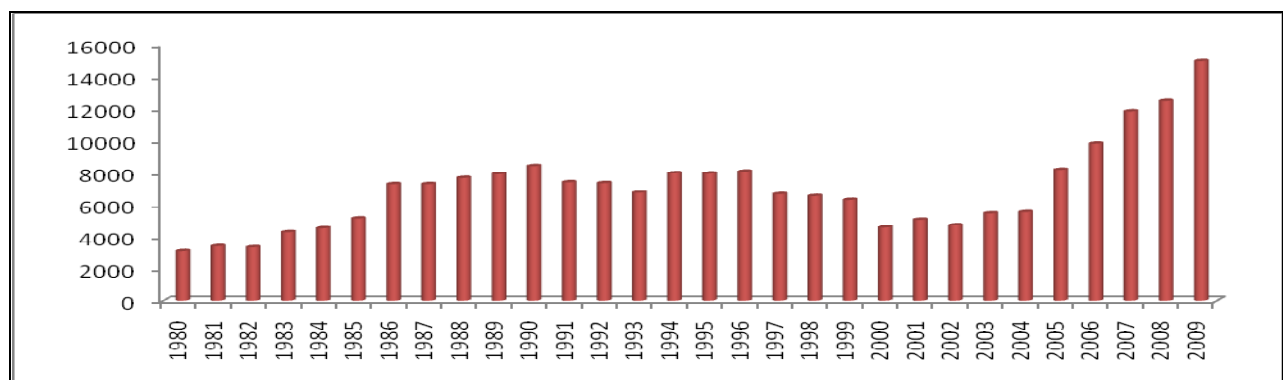


Fig. 2:- Year wise research productivity of publication on Fish research at International Level.

**Relative Growth rate of published research out put on Fish research Literature at International Level.**

The following table shows the relative growth rate of the research publication on fish during the period from 1980 to 2009.

**Table - 3: Relative Growth rate of published research out put on Fish research Literature at International Level.**

Sl.No	Year	No. of output	cumulative	W1	W2	R(a)
1	1980	3117	3117		8.045	
2	1981	3424	6541	8.045	8.786	0.74
3	1982	3354	9895	8.786	9.2	0.41
4	1983	4293	14188	9.2	9.56	0.36
5	1984	4541	18729	9.56	9.838	0.28
6	1985	5150	23879	9.838	10.081	0.24
7	1986	7302	31181	10.081	10.348	0.27
8	1987	7304	38485	10.348	10.558	0.21
9	1988	7684	46169	10.558	10.74	0.18

10	1989	7925	54094	10.74	10.898	0.16
11	1990	8415	62509	10.898	11.043	0.15
12	1991	7417	69926	11.043	11.155	0.11
13	1992	7365	77291	11.155	11.255	0.10
14	1993	6761	84052	11.255	11.339	0.08
15	1994	7976	92028	11.339	11.43	0.09
16	1995	7955	99983	11.43	11.513	0.08
17	1996	8076	108059	11.513	11.59	0.08
18	1997	6672	114731	11.59	11.65	0.06
19	1998	6554	121285	11.65	11.706	0.06
20	1999	6312	127597	11.706	11.757	0.05
21	2000	4588	132185	11.757	11.792	0.04
22	2001	5069	137254	11.792	11.83	0.04
23	2002	4721	141975	11.83	11.863	0.03
24	2003	5467	147442	11.863	11.901	0.04
25	2004	5550	152992	11.901	11.938	0.04
26	2005	8186	161178	11.938	11.99	0.05
27	2006	9817	170995	11.99	12.049	0.06
28	2007	11832	182827	12.049	12.116	0.07
29	2008	12525	195352	12.116	12.183	0.07
30	2009	14995	210347	12.183	12.257	0.07
	<b>Total</b>	210348				0.15

In 1980, the number of fish research output published was 3117 at the international level, and it rose to 210348 by the end of 2009 which is a phenomenal increase in numbers. The relative growth rate has shown a declining trend. It could be seen that the relative growth rate decreased gradually from 0.74 in 1980 to 0.07 in 2005. The study period records the mean relative growth rate of 0.15

## CONCLUSION

The purpose of this study was to examine, sources wise quantitatively scientific productivity on fish and fishing industry, between 1980 and 2009. Research productivity on fish and fishing industry is an interesting phenomenon. In order to understand and to interpret publications on sources wise it must be studied at each source level in its specific way. The following facts and conclusion have been reached: the overall numbers of articles on the topic fish and fishing industry, journal sources have increased producing the greatest number of publications.

The results of the above research issues thus have beyond their significance for monitoring and mapping structural aspects of scientific research, also strong implications for the application of bibliometric indicators in research evaluation. Publication at

specific source of scientific communication would help to identify the preference of the sources and availability of the needed information though the preferred literary sources such as journal, conference article etc. of conclusions drawn from bibliometric results.

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