

Journal of Maritime Research: A Bibliometric Analysis of Published Literature as Seen through Scopus

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ABSTRACT

Lot of bibliometric journal studies have been conducted, surprisingly there are no bibliometric study on Journal of Maritime Research (JMR). This research shows the bibliometric mapping of research published in the Journal of Maritime Research (JMR), a multidisciplinary, peer-reviewed journal published by Universidad de Cantabria, Spain (ISSN: 1697-4840). Using the articles retrieved from the Scopus database for the period 1999-2025, a total of 865 were retained for the analysis. Performance and science mapping indicators which includes annual publications, citations, authorship and collaboration pattern, Lotka's Law of scientific productivity were computed and visualised using VOSviewer and Biblioshiny. Key findings of the research states that the autonomous underwater vehicle (AUV) research, ship design, propulsion engineering, maritime environment and ecology are among the thematic clusters.

1. Introduction.

Bibliometric analysis has emerged as one of the well - established scientific productivity methodologies. The current field is developing and increasing trends. Based on Scopus indexed database there are total 158 papers that have been published on the field during 2005. Due to their importance, it considers the bibliometric field as one of the 11 approaches for the domain analysis theories (Hjorland, 2002). Furthermore, the emphasis on domain analysis and different approaches can be assisted and complemented by bibliometric studies which is another one of the significant approaches (Vargas- Quesada and De Moya- Anegon, 2007; Mokhtari et al., 2020). Bibliometric study comes from an interdisciplinary area and its scope is

all scientific fields (Glanzel, 2003). For half century the bibliometric study of a particular journal has been done (Biswas et al., 2017). The countries and institutions in the papers, the largest productive authors and the paper frequencies in the published papers were examined for that particular journal and previous data were collected. A new technology; an inventing bibliometric software's package led to bibliometric journals visualizations, which includes mapping of co-authors, keywords co-occurrences, co-citations, keyword plus, bibliographic networks and patterns (Mokhtari et al., 2020).

The Spanish society of maritime research is an academic organization headquartered at University of Cantabria in Santander, Spain. It is generally known for publishing the Journal of Maritime research (JMR). The Journal of Maritime research is a well-known and pioneering journal and it is one of the well-established journals in their field. Generally, the journal publishes original research papers by special emphasis on the maritime sector internationally, regionally, locally, and nationally. It publishes empirical, theoretical, approaches as per as the current interest aligned with the scope and aim of the journal. The journal also provides a special focus on concepts, models,

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theories, philosophies, and frameworks as per as the recorded knowledge and its sites. This journal is indexed in Scopus with its quartile Q2.

The main objectives of JMR are to contribute to the progress, diffusion, and development to research in maritime sector. The focus is to provide multidisciplinary platform from the perspectives of all the following broad areas such as social sciences, nautical sciences, experimental sciences, and engineering. This study aims and objectives is to do bibliometric analysis and visualization studies of this journal since inception till 2026. Based on this the following research questions have been formulated i.e.

- What is the pattern of publications of JMR from its inception?
- Which are the key cited publications and influential leading authors in JMR?
- What are the trending and emerging research areas/studies in JMR?
- What is most frequent keyword used and their cluster formations based on keywords appeared?
- Who are the top organizations, countries, and institutions publishing in JMR?
- What are the future avenues in the current studies publication areas?

2. Background of Bibliometric Studies.

We can trace the history of bibliometric studies to the library information sciences. E. Wyndham Hulme used statistical bibliography for the first time in 1992 where he was delivering two lectures at the University of Cambridge (Pritchard, 1969). The lecture was the published as a book which was titled as *Statistical bibliography in relation to the growth of modern civilization* (Hulme, 1923). Hulme believed in the concept of statistical bibliography as the science of organizing recorded knowledge while Otlet used this measurement to as medium to share knowledge and estimated the development of the latest sub discipline named bibliology (Otlet, 1934).

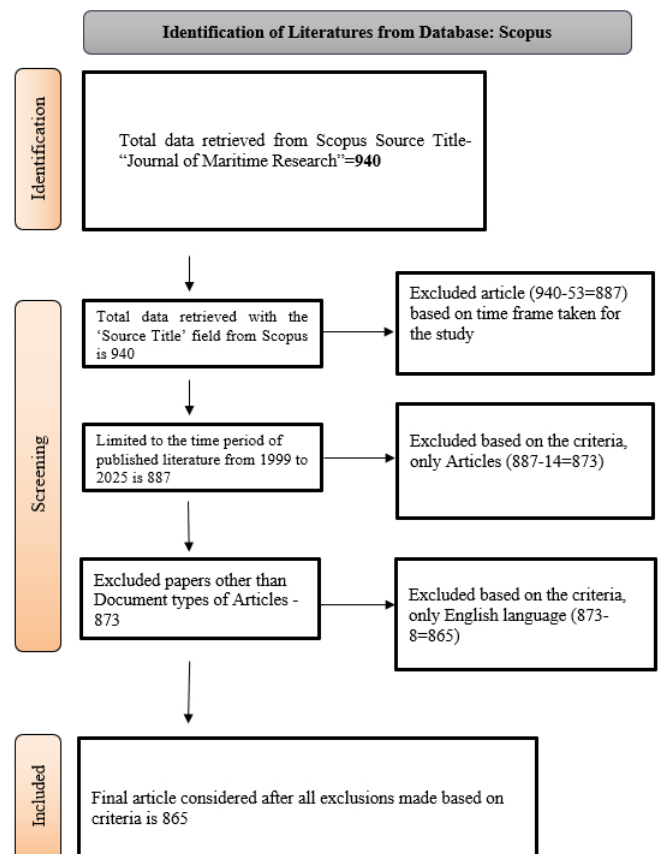
The Journal of Maritime Research (JMR) is a peer reviewed, open -access publication hosted and peer-reviewed journal published by Universidad de Cantabria, Spain (ISSN: 1697-4840) 4840 (print) and 1697-9133 (electronic). According to the editorial policy of JMR, published original research articles in English analysing the maritime sector at international, national, regional levels by incorporating both theoretical and empirical approaches across four main scientific domains, i.e. experimental sciences, nautical sciences, engineering and social sciences (JMR, 2024). A very distinctive feature of the JMR journal is that its commitment to equitable knowledge production ie the journal does not charge any authors or readers any article processing cost (APCs), making it more accessible to researchers worldwide. This open – access models align with global initiative of democratising scientific publications which is where the

APC is significant barrier to the dissemination of knowledge. JMR is indexed in Scopus which is world's largest abstract and citations database for peer reviewed literature (Elsevier, 2024). As per Scopus data Scimago Journal Rank (SJR) of 0.174, SNIP 2025 is 0.339 and Cite Score for 2025 is 0.7.

3. Methodology.

The study is based on Scopus multidisciplinary database for retrieving the published literature. Basic indicators have been adopted such as year wise publications, citation pattern, authorship pattern, preferred document types by researcher, preferred source of communication and institutions mostly conducting research, country wise collaborations, citation networks, bibliographic coupling to measure the growth of this field during 1999-2025. The search string formulated as Your query : (SRC-TITLE (Journal of Maritime Research) AND (LIMIT-TO (DOCTYPE,"ar")) AND (LIMIT-TO (LANGUAGE,"English")) AND PUBYEAR > 1998 AND PUBYEAR < 2026). “A total of 865 papers were finalized for the study after all the screening” (Figure 1). “With the Bibliometric indicators VOSviewer and Biblioshiny visualizing tool has been used for mapping the literatures published in the Journal of Maritime Research”.

Figure 1: Flow Diagram Showing the Data Screening and Finalising Based on Criteria.



Source: Authors.

4. Data Screening.

The screening and finalisation of records followed the sequence of steps as summarised in the flow Chart (Figure 1).

5. Data Analysis and Discussion

5.1. Year-wise Distribution of Publications and Citations

Publication output has remained modest over the years but has risen sharply since 2011–2013 with (107 articles) and the surging drastically in 2023–2025 that itself accounts for 382 articles which is 44% of the entire 27-year data set. This has recent surge has lowered the average citation rate for the recent years (0.84 citations/year) which is since these articles didn't have the necessary time to accumulate citations. 2008–2013 window shows the strongest citation performance with an average of 6–7 citations per articles reflecting a longer citation window rather than lower quality. This pattern shows a consistent increase in the submission volume growth.

Table 1: Year-wise Articles and Citations, 1999–2025.

Publication Period	Total Publications	Total Citations	Avg. Articles/Year	Avg. Citations/Article
1999–2001	21	139	7	6.62
2002–2004	25	105	8.33	4.20
2005–2007	20	69	6.67	3.45
2008–2010	37	271	12.33	7.32
2011–2013	107	656	35.67	6.13
2014–2016	96	252	32.00	2.63
2017–2019	102	106	34.00	1.04
2020–2022	75	119	25.00	1.72
2023–2025	382	321	127.33	0.84
Total	865	2,038	32.04	2.36

Source: Authors.

5.2. Authorship Pattern.

The authorship pattern reveals a dynamic shift over the time i.e. in the journal's early period (1999–2001). From 2008 onwards, there are multi-authored articles, which overtook single authored articles and by 2023–2025 output (304 of 382 articles that are 79.6%) are multi-authored. This trend shows that the broader academic shift in collaborative research, which is consistent with the rising co-authorship with average of 2.65 per documents as, reported in Table 2.

5.3. Author Productivity through Lotka's Law.

Lotka's Law (Lotka, 1926) describes the frequency distribution of scientific productivity which states that a small proportion of authors produces a disproportionately large share of publications whereas the majority produces only a single contribution which is a pattern showcasing as an inverse-square relationship between the number of authors and the number of authors. Table 3 and figure 1 shows the proportion of authors

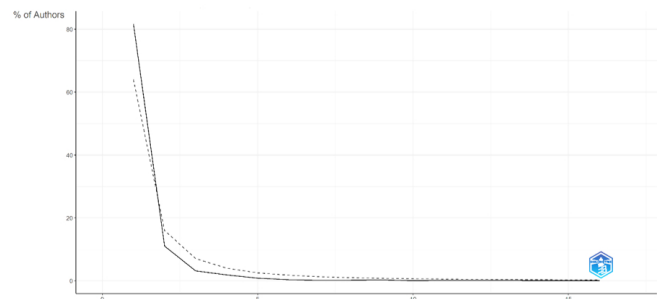
Table 2: Year-wise authorship pattern.

Publication Period	Total Publications	Single-Author	Multiple-Author
1999–2001	21	21	0
2002–2004	25	22	3
2005–2007	20	19	1
2008–2010	37	13	24
2011–2013	107	47	60
2014–2016	96	33	63
2017–2019	102	44	58
2020–2022	75	33	42
2023–2025	382	78	304

Source: Authors.

and the number of authors based on the productivity of JMR authors.

Figure 2: Author Productivity through Lotka's Law.



Source: Authors.

Table 3: Author Productivity Distributio.

Documents Written	No. of Authors	Proportion of Authors
1	1,369	0.817
2	185	0.110
3	53	0.032
4	32	0.019
5	14	0.008
6	6	0.004
7	3	0.002
8	4	0.002
9	5	0.003
10	1	0.001
11	3	0.002
16	1	0.001

Source: Authors.

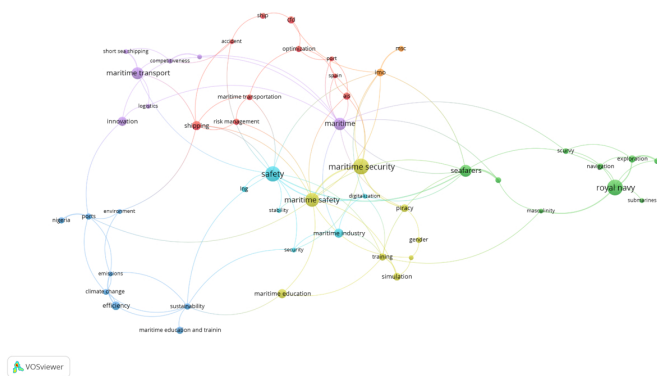
The distribution follows Lotka's law of 81.7% if the 1676

author's contribution to JMR published exactly one article while a very few “core” of authors who are productive published multiple works, which includes a single author's contribution of 16 documents. This is a typical concentration of academic journals which indicates that while the contributions are broad the small group of repeated contributions accounts for a disproportionate share of the journal's cumulative output.

5.4. Keyword Analysis.

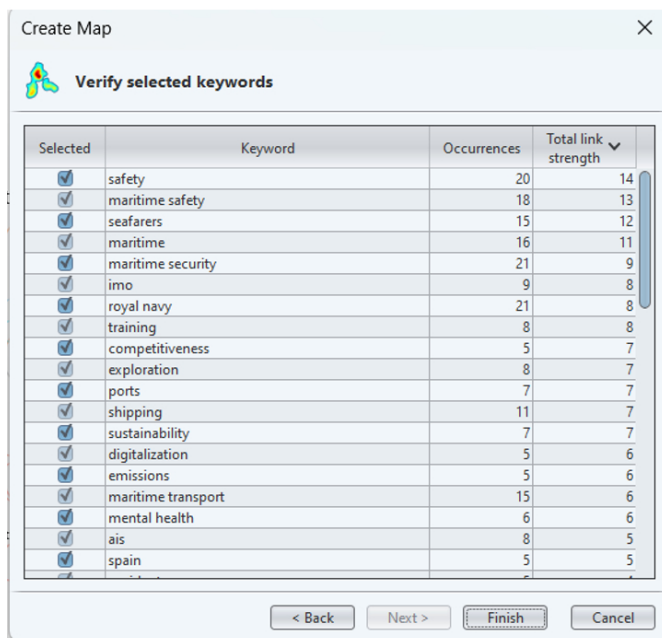
Keyword co-occurrence analysis identifies the dominant clusters within JMR's published research. Figure 2 shows the keyword network map and Figure 3 shows the corresponding keyword clusters which are visualised and generated in VOSviewer and Biblioshiny.

Figure 3: Keyword Co-occurrence Network Map.



Source: Authors.

Figure 4: Keyword Cluster Visualisation.



Source: Authors.

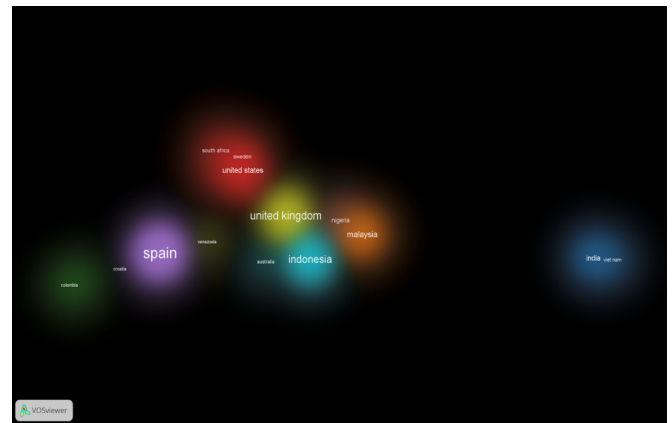
The keyword network reveals several significant distinct thematic clusters which reflects the journal's stated multidisciplinary

scope as stated which are experimental sciences, nautical sciences, engineering and social sciences applied to the maritime industry. Clusters which are centred around the maritime safety, autonomous/ underwater vehicles maritime history and shipping management emerged as one of the prominent nodes.

5.5. Country's Co-authorship.

Collaboration was mapped on country level basis to understand the extend of and structure of international co – authorship among the JMR contributors which is relatively low international co -authorship rate (6.37%).

Figure 5: Country-wise Co-authorship Network Map.



Source: Authors.

Figure 6: Country Collaboration World Map.

Selected	Country	Documents	Citations	Total link strength
☒	spain	183	540	16
☒	malaysia	56	59	13
☒	united kingdom	105	462	12
☒	indonesia	103	91	8
☒	united states	54	195	8
☒	india	40	49	5
☒	sweden	15	65	5
☒	bangladesh	27	14	4
☒	portugal	15	105	4
☒	italy	6	141	3
☒	nigeria	28	25	3
☒	thailand	3	1	3
☒	venezuela	5	3	3
☒	viet nam	13	6	3
☒	australia	9	27	2
☒	colombia	7	8	2
☒	croatia	6	3	2
☒	engineering	3	3	2
☒	france	7	7	2

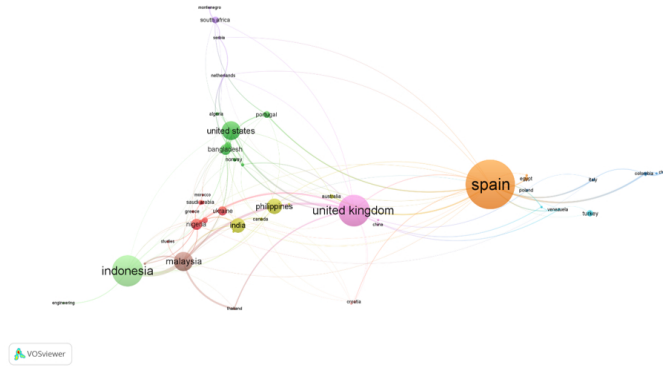
Source: Authors.

The co-authorship network is relatively sparse, with only a limited number of strong international ties by reinforcing the low international co – authorship percentage which was reflected in the dataset. Spain specifically forms the most connected nodes while other small number of small numbers of cross – border collaborative links rather than dense.

5.6. Bibliographic Coupling Country wise.

Bibliographic coupling analysis show the links between the documents that cite common sources which are carried out to examine intellectual proximity among the countries.

Figure 7: Bibliographic Coupling Network (Country-wise).



Source: Authors.

Figure 8: Bibliographic Coupling Density Visualisation.

Verify selected countries				
Selected	Country	Documents	Citations	Total link strength
☒	malaysia	56	59	915
☒	indonesia	103	91	520
☒	united kingdom	105	462	502
☒	spain	183	540	423
☒	united states	54	195	238
☒	thailand	3	1	165
☒	nigeria	28	25	158
☒	sweden	15	65	158
☒	colombia	7	8	129
☒	india	40	49	125
☒	south africa	16	28	104
☒	jordan	2	0	94
☒	netherlands	4	30	90
☒	bangladesh	27	14	86
☒	portugal	15	105	79
☒	croatia	6	3	76
☒	italy	6	141	69
☒	venezuela	5	3	69
☒	australia	9	27	68

Source: Authors.

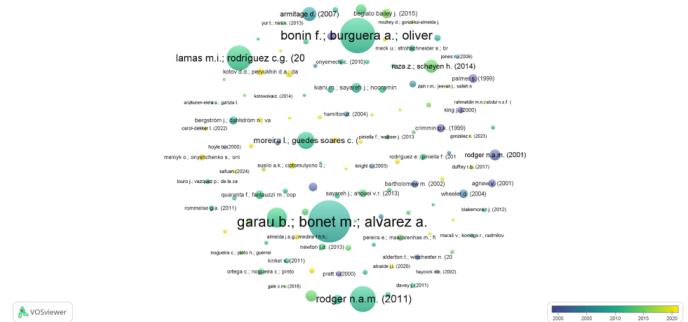
The bibliographic coupling map corroborates the co - authorship findings shows that the countries that has the highest publication has the highest publication volumes in JMR which also shows the strongest bibliographic coupling ties, which shows shared reference bases rather than direct co authorship which are a common form of intellectual linkage among the contributing countries.

5.7. Document wise citation overlay visualization.

The citation overlay visualizes the temporal evolution of journal's citation network, with the node size proportional to the citation counts and colour which indicates average publication

year. One of the highly cited documents on autonomous underwater vehicles and underwater imaging system forms the compact citation hubs while the recent ones are compatibly sparse as illustrated in Table 4.

Figure 9: Citation Overlay Network of JMR Documents.



Source: Authors.

Table 4: Top Four Most-Cited Documents in JMR.

Rank	Authors	Title	Source Details	Year	Citations
1	Garau, B.; Bonet, M.; Álvarez, A.; Ruiz, S.; Pascual, A.	Path planning for autonomous underwater vehicles in realistic oceanic current fields: application to gliders in the Western Mediterranean Sea	JMR, 6(2), 5–21	2009	110
2	Bonin, F.; Burguera, A.; Oliver, G.	Imaging systems for advanced underwater vehicles	JMR, 8(1), 65–86	2011	89
3	Rodger, N.A.M.	From the 'military revolution' to the 'fiscal-naval state'	JMR, 13(2), 119–128	2011	60
4	Lappalainen, F.J.; Kuronen, J.; Tapaninen, U.	Evaluation of the ISM Code in Finnish shipping companies	JMR, 9(1), 23–32	2012	44

Source: Authors.

The most cited work is dominated by technical as well as engineering-oriented research work on the autonomous underwater vehicles and underwater imaging which are publishes early during (2009 to 2011) along with maritime history and shipping safety management research. The citation leadership of the earlier technically focused articles is consistent with the citation age as mentioned earlier.

6. Key Findings.

JMR's publication volume has grown tremendously over the year with an annual growth rate of 12.71% and 44% of all the 865 articles published in the last three years of study (2023-2025) alone show the growth rate and seriousness. With the author productivity close to Lotka's Law of 81.7 % of the 1676 contributing authors published only a single article and a small core of the repeated contributors accounted for the disproportionate share of the output. Also, we could identify that the collaborative authorship has gradually displaced single authorship from the single author outputs in 1999-2001 to 79.6% multi authored in output in 2023-2025. While the international co-authorship remains at 6.37% and the country level collaboration

network also is sparse and concentrated around Spain. Thematic clustering points to recurring research strength in maritime safety, autonomous underwater vehicle technology, maritime history and shipping management. Also, the most cited works are technically oriented ones which were published in the early period of the journal's history.

7. Conclusions and Implications.

The bibliometric mapping of the Journal of Maritime Research over 1999–2025 shows a journal that is on a sustainable growth, with the publication accelerating over the recent three-year period. The breath of the author base is substantial, but a small core of the repeated contributors consisted with the Lotka's (1926) Law. The recent shift towards multi – authored research reflects broader trend which can be seen in academic collaborations, through international co-authorship remains a relative area of weakness Meyers et al. (2021). The findings had the potential to strategize on the journal editorial policy and for the authors seeking to build the journal's global visibility. For the editorial board of the journal these findings give an opportunity to encourage cross border co authorship and to monitor the citations trajectory of the 2023–2025 cohort as they mature over time. For the researchers those who are considering JMR as a publication outlet the findings show that the journal is receptive, multidisciplinary venue and has a citation strength in maritime engineering and safety management research.

8. Limitations.

The study has several limitations, firstly the analysis relies solely on Scopus Indexed records and the article document and have excluded (editorials, reviews, conference papers) and records that are not Scopus indexed. Secondly citation counts reflect a single extraction point of recently published works which tend to have less citation, a pattern which was visible during the periods of 2023–2025.

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