International Journal of Management and Commerce Innovations ISSN 2348-7585 (Online)
Vol. 13, Issue 2, pp: (873-878), Month: October 2025 - March 2026, Available at: www.researchpublish.com

IMPACT OF ARTIFICIAL INTELLIGENCES (AI) IN FISHERIES

Mrs.V.Maria Subaitha[1], Dr. R. Vijayalakshmi[2]

[1]*Ph.D. Research Scholar, P.G Research Department of Commerce with Computer Applications, Idhaya College for women, Sarugani. Affiliated with Alagappa University.*

[2]*Associate Professor and Head of P.G. Research Department of Commerce, Idhaya College for Women, Sarugani.*

DOI: https://doi.org/10.5281/zenodo.19182735

Published Date: 23-March-2026

Abstract: **The present article is examines the extent of the impact of AI on the fishing industry. Specifically, this paper is undertaken in the Rameswaram fisheries region. Rameswaram territory surrounded by the sea on all the four sides. In early 20th century times, people carried out fishing activities using catamarans. But now in modern world they have adopt technology in their business. The development of science and technology through experience they have incorporated modern advancement in to their industry and progressed. Significantly. Most of the fishing community fisher folk are uneducated, they have lack of technology awareness and learning but the now learned to use technology through experiences. They use this technology to locate the area where the most high level fish are found, transmitter and mobile app use to identified the signals during the fishing trip period, they used technology to connected the signaling they able to communicate with others during critical situation and they use high- power engines and modern technology for fishing and for exporting their product etc. However they don't have a complete technological knowledge, and therefore they sometimes face a problems while using these technology. The government and NGO's should organize awareness program and arrange the technology handling training class to improve their technology skill and help them handle these technology effectively.**

Keywords: **GPS, Android, Wacky Tacky, Radio Transmitter and Micro phone.**

1. INTRODUCTION

Ramanthapuram district fishermen community main source is marine fishing, fishing sector is the one of the main source of the Indian economic growth and fisheries sector provide the food for society and nutritional health to the globle. The present study examine the implementation of technology usage in fishing community for communication. The fishermen used technology to communicate the family members, contact friends and market among themselves. Getting signals from radon using by GPS sensor and to found location of huge fish. The use android phone used to communicate the price, market, urgent needs, pass the information, weather report and get information about offshore information on during trip time. Though, the technology used that hoe the fishermen community watch the television news and get the information from radio and they have choose what kind of programs they nice to see on TV during cyclone period they use weather app in mobile to get the weather report and get the government warning about natural disaster.

The most of the article reviews are examine technological important and technological opportunities in the fisheries sector and the development of the boat control and automation using artificial intelligences (AI) and machine learning to facilitate navigation, security, safety and information sharing for ramanathapuram fishermen. The fishing community main needed communication source, and their main requirement for a high quality fishing boat with proper communication devices to provide required information to fishermen and the control room. Modern technology play a technology used by the fishermen to communicate others easily in critical situation. Important role in fishing activity such as AI, Machine learning.

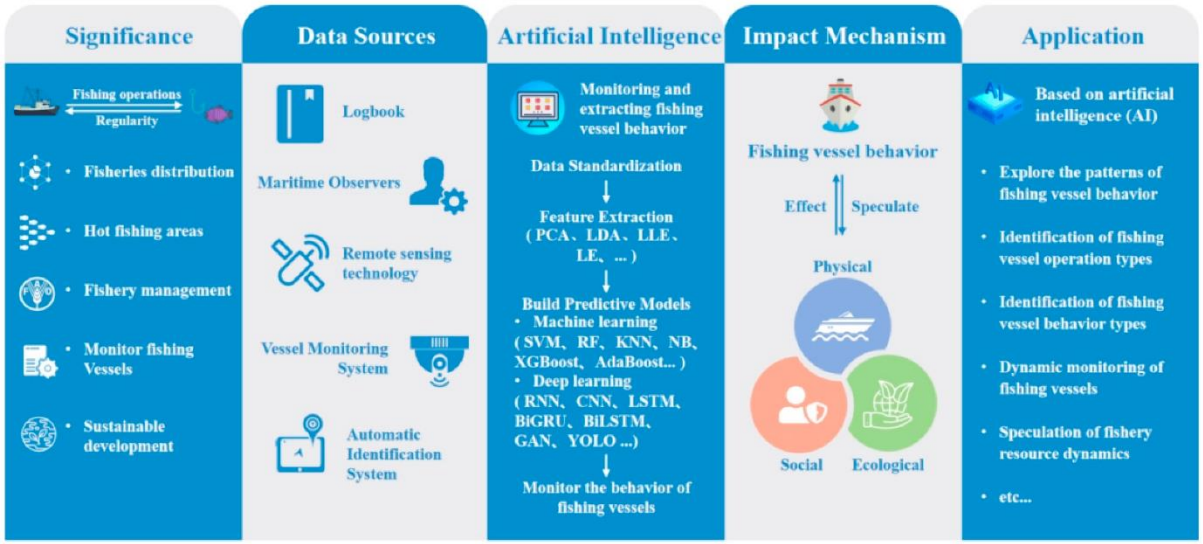


Figure: The overall structural framework of the paper

Source: (2023). Application of artificial intelligence in the study of fishing vessel behavior. *Fishes*, *8*(10), 516.

OBJECTIVE OF THE STUDY:

- To examine the technology usage in fisheries sector.
- To investigate the technological impact in fisheries sector in Ramanathapuram district.
- To evaluate the technological role in fisheries growth and administration.
- To assess the outcome of AI on developing fishing activities and sustainability
- To found out the implementation and problems level of Machine learning among fishers.

2. REVIEW OF LITERATURE

Cheng, X. (2023) report the study observing and investigate the behaviour of the fishing boat are important facilitating protect the illegal fishing, find out tracking system in fishing acitiives.in modern fishing fishermen adopt the various technological tools .The researcher first to developed the various data and then secondly review the AI methods to collected the big data from vessels monitor and extract behaviour. The study analyse the ecological, socio and physical affecting behaviour vessels

Mandal, A., (2025) the study examine the AI impact in fisheries sector. They evaluate how the modern technology implement in fish production, sustainability and controlling. the study collected data for water temperature, weather, salinity and fish behaviour by combing the algorithm for gps, transmitter, and wakki-takki. The study found the result of AI used for fishing activities in many ways such as fishing gear avoid by catch and negative environment effect. The study evaluate the how to AI developed fishing in to the next stage of fishing

Li, P., Han, (2025) researcher reported the digital transformation in china aquaculture. The study mainly examine the aquaculture digital transformation and fishing processing, they researcher investigated eight division of aquaculture. The study found the digital platform usages in future process. They analyses various secondary data to determine the aquaculture digital processing. The reviews of the paper providing future implementation in fisheries. These digital development in aquaculture to implement the digital platform in aquaculture.

3. PROBLEMS OF TECHNOLOGICAL TOOLS

The technology is essential for fishermen, however it also has certain disadvantage. During their fishing trip time, they often spent more time to watch mobiles phones, or listening radio. During these moments of inattention they may face serious consequences. Due to a lack of attention while navigating at sea. Fishermen may accidentally cross the maritime border of neighboring countries.in some cases, the Sri Lanka navy apprehends fishermen for crossing border and imposes severe punishment. Fishermen may be detained and imprisoned for one or two years for such violations. Therefore automatic

boat detection system and accurate boat position technological development in the fishing sector provide various information and communication devices that help improve fishing activities. These include the global positioning system, walkie-talkie, antenna based signal communication systems and automatic identification system. These technology provide large amount of information, such as vessel identification details and global communication updates. When the fishermen use these technology properly, they can significantly benefit from them. Sometimes unexpectedly, these devices malfunction or fail during fishing trip, fishermen may face difficulties in navigation .in such situation, and they may unintentionally cross international borders or move in the wrong direction, which can lead to serious problem.

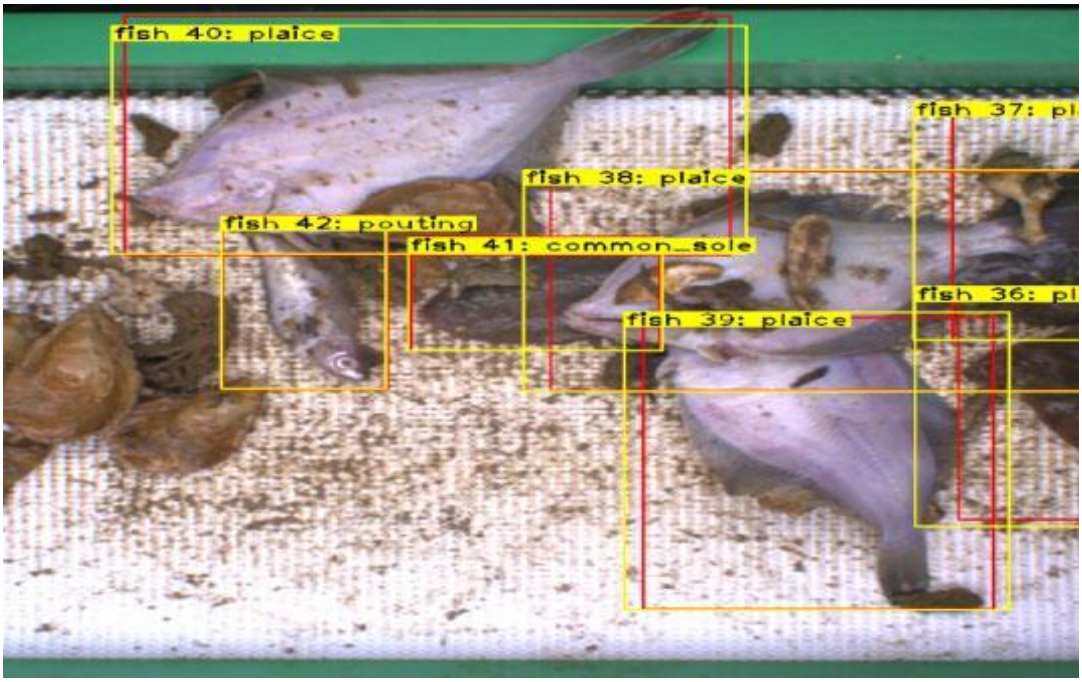
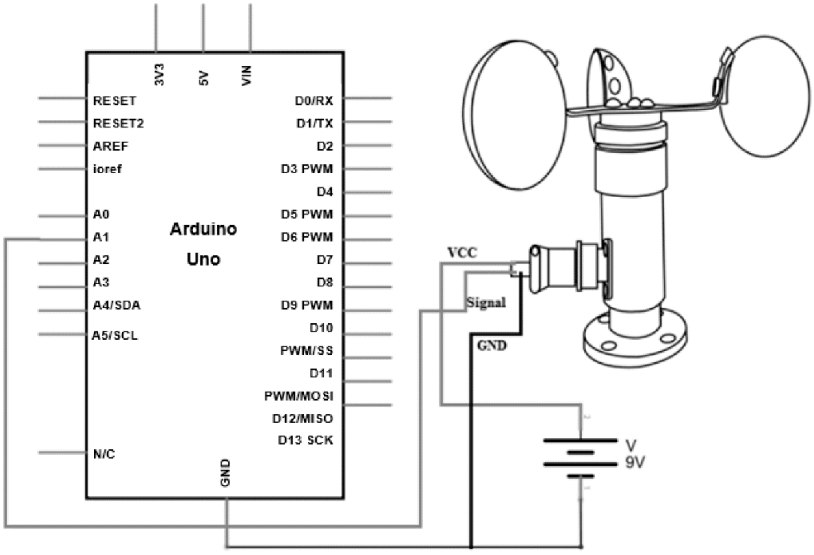


Figure: Use of AI in Fish Stock management and sorting

(Source:https://oceans-and-fisheries.ec.europa.eu/news/fisheries-management-artificial-intelligencemakes-difference-2023-11-07_en)

The fisheries region has collected data found from the satetilight signal, mobile app and networks .such as GPS, WAKCY-TAKCY and Mobile app to indentify the weather repport an seashoer information.



Source: Arduino, "Arduino Uno Rev3 Documentation," Arduino, 2023.

The Uno Rev image is the 9V solar air Uno, the fishing community people used these materials to find out the weather report during fishing trip. It's helpful to escape from the natural disaster.

The throughout the study of the previous reviews that only a minimum modern technology used in mechanize boats Such as Gps ,machine learning ,android mobile phones, ZIP and AI tools .These tools are used for identify weather report, where the huge amount of fish locate, fishing ,and fishing catting automated engine, automatic engine ,fish storage technology, temperature ,pressure of the engine they to monitor, battery charge, campus to use to identify the location, country border tracking with the application of AI. The fishermen used transmitter to found the signals to communicate the family and relatives. During fishing trip period fishermen want to connect with their family members, these communication give the strength and confidents and peace mind to work.

Table 1: Demographic Profile

Variables	Category	Frequency	Percentage (%)
Age	Below 30	25	16.7
	31–40	35	23.3
	41–50	48	32
	Above 50	42	28
Education	Illiterate	37	24.7
	Primary	50	33.3
	Secondary	28	18.7
	Higher	35	23.3
Experience	Below 20 years	15	10
	21–30 years	35	23.3
	31-40 years	55	36.7
	Above 40 years	45	30
Type of Work	Fishing	30	20
	Processing	45	30
	Marketing	48	32
	Net Mending	27	18

4. MATRIALS AND METHODS

The present study conducted through the face to face, personal interviews, and feedback collected from the specific research area such as, Thangachimadam, Pamban, Rameswaram and Mandapam. Study collected secondary data from journals, government report and website. The samples were collected from the 150 respondents from the research area. The socio demographic profiles were calculate chi square test found the difference between the demographical

Assuming Education level as X

X	Illtral	Primary	secondry	Higher seconry
Y	37	50	28	30

Source: **primary data**

Assuming over all types of work as Y

X	Fishing	Processing	Marketing	Net mending
Y	30	45	48	27

Source: **primary data**

Calculation of correlation

S.NO	X	X2	Y	Y2	XY
1	37	1,369	30	900	1,110
2	50	2,500	45	2,025	2,250
3	28	784	48	2,304	1,344
4	30	900	27	729	810
TOTAL	150	5,553	150	5,958	5,514

r = 0.27

The correlation value 0.27 it shows the strong relationship between education and their types of work.

Chi square:

Chi square test uses to calculate to find out difference between two variables such as age and education.

S.NO	O	E	O-E	$(O-E)^2$	$(O-E)^2/E$
1	25	37	12	144	3.89
2	35	50	15	225	4.5
3	48	28	20	400	14.28
4	42	45	3	6	0.13
Total	**150**	**150**			**22.80**

Source: **primary data**

The chi square test value is 22.80 is less than the 5% of the significant level.

5. FINDINGS

Ramanthapuram district is an important coastal area in Tamilnadu. Its a vast area, they study focus on Rameswaram island. The fisheries sector contribution is play essential role in Indian economy. In early fishing community people used catamaran, then usages of small low power engine boat that's cost expenses also less but no they are using high power engine such as 93power engine,91 power engine and chine its appropriate high-power engine. Fishing activities transformed traditional into modern because of technological implementation. Requirement of technology to find out the natural climate, disasters warning, weather report from mobile app, singles to communicate their family and friends used by transmitter and wacky- tacky to communicated their nearby boats during troubles time. during trip time repair technology they may face some consequences the cross maritime.

6. SUGGESTION

Technological improvement if fisheries is one of milestone of the Indian economy. But they have lack of technical knowledge, however they faces many problems. The government (fisheries department) give the proper training to the fishermen for handling equipment, skill based training and technology usage. The government should proper training for GPS, transmitter, AI and weather guessing system. Fisheries department should take to improve education and skill awareness. Even though the government should ensure better development of welfare schemes, NGO's conducted extension and workshop for the fishermen.

7. CONCULSION

The study examined relationship among the technical needs and socio economic characters using analyses tools such multiple correlation, Chi Square test, correlation. The correlation result indicates the positive and difference among the different variables the demographic and skill activities result in study. Finally the study concludes the government should take an action for awareness program, welfare schemes and NGO's should organizes the technical handling workshop and awareness class for technical capacity building.

REFERENCES

[1] Ali, B. Q. M. P. F., Keerio, C. A., Buriro, R. A., & Razaque, A. (2014). Adoption of information communication technology tools among fishermen. *Journal of American Science*, *10*(7), 234-245.

[2] Amuthakkannan, R., Vijayalakshmi, K., Al Araimi, S., & Ali Saud Al Tobi, M. (2023). A review to do fishermen boat automation with artificial intelligence for sustainable fishing experience ensuring safety, security, navigation and sharing information for Omani fishermen. *Journal of Marine Science and Engineering*, *11*(3), 630.

[3] Jiang, Y., Huang, L., Liu, Y., & Wang, S. (2024). Impact of digital development and technology innovation on the marine fishery economy quality. *Fishes*, *9*(7), 266.

[4] Glenn, V. D., Oli, G. A., Chrispin, C. L., & Durairaja, R. (2025). Uncovering the skill gaps on the competency needs of fishermen in the coastal districts of Tamil Nadu.

[5] Cheng, X., Zhang, F., Chen, X., & Wang, J. (2023). Application of artificial intelligence in the study of fishing vessel behavior. *Fishes*, *8*(10), 516.

[6] Mandal, A., Banerjee, M., & Ghosh, A. R. (2025). The significance of artificial intelligence (AI) in fishing crafts and gears. *Environmental Science Archives*, *4*(1), 44-58.

[7] Li, P., Han, H., Zhang, S., Fang, H., Fan, W., Zhao, F., & Xu, C. (2025). Reviews on the development of digital intelligent fisheries technology in aquaculture. *Aquaculture International*, *33*(3), 191.

[8] Bujang MA. A Step-by-Step Process on Sample Size Determination for Medical Research. Malays J Med Sci. 2021 Apr;28(2):15-27. doi: 10.21315/mjms2021.28.2.2. Epub 2021 Apr 21. PMID: 33958957; PMCID: PMC8075593.