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Blue Accounting Practices for Marine Economic Sustainability: A Descriptive Analysis of the Implementation of Blue Accounting in

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the Fisheries Sector in West Kutai Regency

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**ABSTRACT:** Indonesia as the largest archipelagic country in the world has a marine economic potential of up to US\$ 1,338 billion per year, but its utilization requires a sustainable approach through the implementation of Blue Accounting as an instrument for marine resource management that integrates economic, social, and environmental aspects. This study aims to analyze the practice of Blue Accounting in the fisheries sector in West Kutai Regency, identify the factors that affect its implementation, evaluate its contribution to the sustainability of the marine economy, and identify challenges and opportunities for its implementation. The research used a descriptive qualitative method with an in-depth interview technique with seven related structural officials as key informants selected by purposive sampling, carried out for nine months at the West Kutai Regency Fisheries Office. The results of the study show that the implementation of Blue Accounting is still in the development stage with the formulation of sustainable policies having been implemented well, the community-based POKMASWAS system has been formed in six coastal sub-districts, but monitoring technology has not been optimal. Aquaculture production increased by 15.7% to 2,777 tons with the achievement of the target of 106.8%, accompanied by a reduction in poverty of 0.53% and open unemployment of 0.58%. The main inhibiting factors include limited supervisory human resources, lack of operational budget (1.5% of the total budget), and limited technological infrastructure. Blue Accounting contributes positively to the sustainability of the marine economy through increasing productivity, diversifying businesses, and improving the welfare of coastal communities. It is recommended to increase budget allocation, strengthen human resource capacity, develop real-time monitoring systems, and diversify funding sources to optimize the implementation of sustainable Blue Accounting.

KEYWORDS : Blue Accounting, Marine Economy, Fisheries Sustainability, West Kutai, Resource Management

# I. INTRODUCTION

Indonesia as the largest archipelagic country in the world has a competitive advantage in the sustainable use of marine resources. Indonesia's marine economic potential is estimated to reach US\$ 1,338 billion or equivalent to Rp19.6 trillion per year, which shows the great opportunity to optimize the marine sector as the main pillar of national economic development. However, the utilization of the potential of the marine economy requires a comprehensive and sustainable approach to ensure a balance between economic growth and the sustainability of marine ecosystems. The concept of Blue Economy has become a new paradigm in marine resource management that integrates economic, social, and environmental aspects holistically. The Blue Economy is defined as the sustainable use of marine and coastal resources to encourage economic growth, improve community welfare, and maintain the health of marine ecosystems (World Bank, 2021). The implementation of this concept requires accounting instruments that are able to measure, report, and manage the impact of economic activities on the marine environment comprehensively. Blue Accounting or blue accounting emerged as a development of the concept of environmental accounting which specifically focuses on the marine and fisheries sectors. In contrast to green accounting which has been widely researched in the context of the manufacturing and mining industry [1], [2], blue accounting presents its own complexity because it must accommodate the unique characteristics of marine ecosystems that are dynamic and interconnected. This accounting approach integrates the valuation of marine resources, environmental externality costs, and marine ecosystem benefits into traditional financial reporting systems.

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Empirical findings from various countries show that the implementation of blue accounting can increase transparency and accountability in the management of marine resources. A study conducted by Bennett et al in the Australian fisheries sector revealed that the implementation of blue accounting has succeeded in increasing the efficiency of resource allocation by 23% and reducing negative impacts on marine ecosystems by 35% [3]. Similar research by Moozanah et al in the Mediterranean region shows that fisheries companies that implement blue accounting have better sustainability performance compared to companies that use conventional accounting systems [4]. In Indonesia, the fisheries sector has a significant contribution to the national economy with a production value of IDR 354.8 trillion in 2023 (BPS, 2024). West Kutai Regency, as one of the areas with great fisheries potential in East Kalimantan, faces challenges in balancing the exploitation of fishery resources with environmental conservation efforts. Data from the West Kutai Marine and Fisheries Service (2023) shows that fishery production has experienced significant fluctuations in the last five years, with a downward trend in some commercial fish types due to excessive exploitation pressure.

However, there is a significant gap in the literature related to the implementation of blue accounting in Indonesia, especially in the context of the fisheries sector. Most environmental accounting research in Indonesia is still focused on green accounting in the industrial and mining sectors [5], [6], while in-depth studies on blue accounting in the fisheries sector are still very limited. This gap creates an urgent need to develop a comprehensive understanding of blue accounting practices and their potential implementation in Indonesia's local context. The novelty of this research lies in an in-depth exploration of the practice of blue accounting in the fisheries sector in Indonesia, which has never been done comprehensively before. This study uses a qualitative descriptive approach to analyze the implementation of blue accounting in West Kutai Regency, taking into account specific social, economic, and environmental contexts. The theoretical contribution of this research is the development of a conceptual framework for blue accounting that is tailored to the characteristics of Indonesia's fisheries sector, while the practical contribution is in the form of policy recommendations for optimizing the implementation of blue accounting in supporting the sustainability of the marine economy.

Based on the background that has been described, this study formulates the following problems: How is the practice of blue accounting applied in the fisheries sector in West Kutai Regency?, What are the factors that affect the implementation of blue accounting in the fisheries sector in West Kutai Regency?, How does blue accounting contribute to the sustainability of the marine economy in West Kutai Regency?, What are the challenges and opportunities in the implementation of blue accounting to support sustainability of the fisheries sector in West Kutai Regency?. In line with the formulation of the problem that has been determined, this study aims to: Analyze and describe the practice of blue accounting applied in the fisheries sector in West Kutai Regency., Identify and analyze the factors that affect the implementation of blue accounting to the sustainability of the marine economy in West Kutai Regency., Evaluate the contribution of blue accounting to the sustainability of the marine economy in West Kutai Regency., Identify challenges and opportunities in the implementation of blue accounting to the sustainability of the marine economy in West Kutai Regency., Identify challenges and opportunities in the implementation of blue accounting to the sustainability of the marine economy in West Kutai Regency., Identify challenges and opportunities in the implementation of blue accounting to the sustainability of the marine economy in West Kutai Regency., Identify challenges and opportunities in the implementation of blue accounting to support the sustainability of the fisheries sector in West Kutai Regency.

This research is expected to provide the following benefits: Enriching the environmental accounting literature, especially in the development of the concept of blue accounting which is still relatively new in the Indonesian context. Contribute to the development of sustainable accounting theories that integrate economic, social, and environmental aspects in the marine sector. Provide a conceptual framework for blue accounting that can be used as a reference for further research in the field of accounting and marine economics. Providing policy recommendations to the local government of West Kutai Regency in the implementation of blue accounting to optimize the management of fishery resources. Provide practical guidance for fisheries business actors in implementing blue accounting as a sustainable management instrument. Support the achievement of the Sustainable Development Goals (SDGs), specifically goal 14 on life under the sea and goal 8 on decent work and economic growth. Develop qualitative research instruments that can be replicated to examine the implementation of blue accounting in other regions with similar characteristics. Contribute to the development of environmental accounting in the regions with similar characteristics.

### II. METHODS

This study uses a qualitative approach with a descriptive design to analyze the practice of blue accounting in the fisheries sector in West Kutai Regency. The qualitative approach was chosen because it is in accordance with the research objectives that seek to understand complex phenomena related to the implementation of blue accounting in depth and comprehensively in the context of natural settings. The descriptive design is used to systematically describe the facts and characteristics of blue accounting practices applied by relevant agencies in the management of the fisheries sector. The location of the research was determined at the Fisheries Office of West Kutai Regency, East Kalimantan, which was chosen based on the consideration that this agency is a leading sector in the management and development of the fisheries sector in the region. The selection of this location is also based on the significant fisheries potential in West Kutai Regency and its relevance to the implementation of the sustainable marine economy concept. The research was

carried out over a nine-month period, starting from June 2024 to March 2025, which included the initial observation stage, primary data collection, and in-depth analysis.

The main data collection technique used is in-depth interviews with key informants who have competence and authority in the management of the fisheries and environmental sectors. The research informants consisted of seven structural officials selected by purposive sampling, including: the Head of the West Kutai Regency Fisheries Service as a strategic policy maker, the Secretary of the Fisheries Service as the operational coordinator, the Head of the Capture Fisheries Division and the Head of the Aquaculture Division as a technical expert in the field of fisheries, the Fisheries Extension Officer as the implementer of the field program, the Head of the Social Empowerment Division of the Social Service for a socio-economic perspective fishery community, and the Head of Pollution and Environmental Damage Division of the Environment Agency for environmental sustainability aspects. The interview was conducted using structured interview guidelines developed based on the conceptual framework of blue accounting and adjusted to the role of each informant. Each interview session lasts between 45-60 minutes and is recorded with the informant's consent to ensure data accuracy. The data from the interviews were then analyzed using thematic analysis techniques with coding, categorizing, and theme development stages to identify the main patterns and themes related to blue accounting practices in the fisheries sector in West Kutai Regency.

### III. RESULTS

## Blue Accounting Practice in the Fisheries Sector of West Kutai Regency

Based on the results of interviews with various key speakers, the implementation of blue accounting practices in West Kutai Regency shows diverse characteristics with the level of implementation that is still in the development stage. The West Kutai Regency Fisheries Office has developed policies that show a commitment to long-term sustainability. As revealed by resource person J, "The West Kutai Regency Fisheries Service has so far tried to develop policies that not only focus on short-term economic benefits, but also on long-term sustainability and community welfare". The supervisory system developed adopts a community-based approach through the formation of Supervisory Community Groups (POKMASWAS). This strategy is implemented by "optimizing community-based supervision (POKMASWAS) in the field, of course, it is by equipping them with supervisory supporting facilities" as explained by the resource person J. POKMASWAS has been formed in various coastal sub-districts of Mahakam such as Jempang, Penyinggahan, Muara Pahu, Mook Manoor Bulatn, Tering and Long Iram through socialization to village heads and providing education about the importance of nature conservation so that it remains And that's what makes it However, the implementation of monitoring technology still faces significant limitations. The current use of technology "has not been utilized to the fullest, because it only uses HT (handy talky) communication tools and other communication tools such as cellphones in case of illegal fishing incidents" and is still "in the development stage and has not been fully implemented" systematically. The main challenges include "limited technological infrastructure, unstable internet networks" and "lack of skilled human resources, as well as lack of capital and investment in the procurement of modern technology for small- and medium-scale farmers".

### **Fisheries Production Data and Economic Indicators**

The aquaculture sector shows significant dominance in the regional economic contribution. Aquaculture production increased from 2,400 tons in the previous year to 2,777 tons in 2024, exceeding the target of 2,600 tons or reaching 106.8% of the set target. This achievement was achieved through "adding aquaculture facilities and infrastructure for fish farming groups (POKDAKAN)" and conducting socialization related to the use of environmentally friendly aquaculture technology. The most cultivated types of fish include "catfish, snakehead fish, and jellyfish", while for capture fisheries, local fish types that are still widely found include "yellowfin catfish, haruan, gurami mahakam, toman, baung, belida, gentilap, berukung, seluang, jelawat, kendia" with a trend that tends to increase. Aquaculture plays a major role in supporting the economic resilience of the community, as stated that "the management is appropriate, fisheries practices can improve welfare without damaging natural capital". Economic indicators show a positive impact with a decrease in the poverty rate by 0.53% and an open unemployment rate by 0.58% in 2024. Economic measurement is carried out through the application of the Cultivator Exchange Rate (NTP) by "calculating the selling price multiplied by the amount of production divided by the cost of production" and calculating the Break Even Point (BEP) with a standard of at least 1 cultivator owning 4 units of cages or ponds.

# **Factors Affecting the Implementation of Blue Accounting**

The implementation of blue accounting is influenced by various supporting and inhibiting factors. Key supporting factors include active institutional collaboration. The West Kutai Regency Government has "collaborated with the Faculty of Fisheries and Marine Sciences, IPB University on the Preparation of a study on the development of fisheries clusters" and obtained "assistance through the Forest Carbon Partnership Facility-Carbon Fund (FCPF-CF) program" which aims to increase the capacity of cultivators in managing

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sustainable fisheries businesses. The support of non-governmental organizations also made a significant contribution, "already from WWF West Kutai and the Rasi foundation related to pesut mahakam". Cooperation with the private sector has also been carried out, such as "in collaboration with PT. Energi Batu Hitam (EBH) we conduct training and counseling on freshwater fish cultivation for prospective fostered partners." However, various inhibiting factors are still a serious challenge. Limited human resources are a crucial issue with "a lack of supervisory human resources, both for the Service and in the community" and "the lack of operational costs of supervision and infrastructure". Community resistance is also an obstacle, where "most fishermen do not want to change. Anti-change. Keep doing what is usually done" and lack of human resources to provide conservation education. The water quality condition shows an average pollution index of light pollution based on 8 measurement parameters according to the Minister of Environment and Forestry Regulation No. 27/2021, but monitoring only covers 7 tributaries with a frequency of 2 times per year. The impact of mining activities due to the shift in industrial zones after the establishment of the IKN also affected the quality of the waters, where "mining activities began to shift from Kutai Kartanegara to West Kutai" which caused "fish habitats to move upstream" and triggered fishermen to use prohibited fishing gear.

### Blue Accounting's Contribution to the Sustainability of the Marine Economy

Blue accounting makes a positive contribution to the sustainability of the marine economy through various aspects. From the economic aspect, the increase in aquaculture production reached 377 tons or 15.7% from the previous year showing the effectiveness of data-based management. The application of NTP and BEP indicators helps cultivators in making more precise economic decisions. Contribution to the environmental aspect is shown through the climate village program that uses *"environmentally friendly energy such as solar power, hydropower, wind power"* and the establishment of *"customary forests, urban parks and urban forests"*. The implementation of the EIA and supervision by the P4LH Team ensures that *"economic development remains in line with the ecological capacity of the region"*. Social empowerment is carried out through training and counseling that increases the capacity of fishermen and cultivators. This collaboration creates direct economic added value while maintaining sustainable fishing and cultivation practices.

# **Challenges and Opportunities for Blue Accounting Implementation**

The structural challenges faced include "limitations and data and information, lack of capacity and human resources, limited funding is also included, and also lack of public awareness and participation". This condition is exacerbated by "low levels of education" and limited access to health and coastal communities' dependence on primary sectors such as fisheries and agriculture. The budget available for the supervision program is only 1.5% of the total budget of the Office, so "to overcome it, it must involve non-governmental institutions, as well as seeking grant assistance or operational fund assistance to other parties". Development opportunities include "diversification of fisheries businesses, tourism can also be carried out, and wider market access". The hope for the future is the implementation of "monitoring and supervision, collecting data in real time, and it can be done mobile through information systems" that can support data-driven decision-making for the sustainability of the fisheries sector in the future.

#### IV. DISCUSSION

#### Blue Accounting Practice in the Fisheries Sector of West Kutai Regency

The implementation of blue accounting in the fisheries sector of West Kutai Regency shows unique characteristics as part of sustainable marine resource management efforts. Based on the findings of the study, blue accounting practices in this region are still in the development stage with various components that show various levels of implementation. Policy formulation focused on long-term sustainability has been well implemented, reflecting the commitment of local governments to develop the fisheries sector that not only prioritizes short-term economic benefits but also considers environmental and social aspects. This is in line with the concept of the blue economy explained by [7] that the blue economy is an important issue because healthy oceans provide jobs and food, support economic growth, regulate the climate, and support the well-being of coastal communities. A community-based supervision system through POKMASWAS (Supervisory Community Group) has been formed in various coastal sub-districts of Mahakam, but its implementation is still partial by using basic communication tools such as handy talkies and mobile phones. This condition shows that although the basic surveillance infrastructure already exists, it is not yet supported by adequate technology for real-time monitoring. [8] He emphasized that Blue Accounting is a derivative of the blue economy which includes the development of land and sea-based economies such as the development and maintenance of the coastal tourism sector, the development of coastal areas, community commodities, technological innovation, human resources, natural resource supervision, and the fisheries sector in a sustainable manner.

Data management in blue accounting practices in West Kutai Regency is carried out through monitoring seven tributaries with an average pollution index showing the category of light pollution. Although this condition still meets the standards set in the Minister of Environment and Forestry Regulation No. 27/2021,

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the frequency of monitoring that is only carried out twice per year shows limitations in the collection of comprehensive time series data. Monitoring technology is still in the development stage and has not been systematically implemented, so it needs to be improved to support accurate data-driven decision-making. ,[9] emphasizing the importance of environmental aspects that require the government to be able to manage the budget wisely in supporting the implementation of the Sustainable Development Goals (SDGs) that focus on the blue economy. Stakeholder collaboration in the implementation of blue accounting shows positive aspects with active cooperation between local governments and various parties including IPB University, WWF, and PT. EBH. The partnership reflects the multi-stakeholder approach required in the sustainable management of marine resources. [10] explained that the international partnership strategy is one of the important steps in achieving the goals of the blue economy roadmap, where Indonesia uses the National Blue Agenda Actions Partnership (NBAAP) as a partnership strategy to support the achievement of Indonesia's blue economy roadmap.

#### **Factors Affecting the Implementation of Blue Accounting**

The implementation of blue accounting in the fisheries sector of West Kutai Regency is influenced by various supporting and inhibiting factors that interact with each other in shaping the effectiveness of the program. The main supporting factors include active institutional collaboration with various institutions such as IPB University, WWF, and PT. EBH, which provides technical and methodological support in the development of blue accounting practices. The assistance program through the FCPF-CF (Forest Carbon Partnership Facility -Carbon Fund) for eco-friendly aquaculture provides financial incentives for communities to adopt sustainable fisheries practices. The establishment of POKMASWAS in six coastal sub-districts shows the active participation of the community in the supervision and management of fishery resources, which is in line with the principle of community empowerment in the concept of blue economy. Significant inhibiting factors include the limited human resources of supervisors who are categorized as critical conditions, the lack of operational budget for supervision activities, and inadequate technological infrastructure, especially in terms of internet network stability. These limitations have an impact on the effectiveness of the monitoring system and data collection required for the implementation of comprehensive blue accounting. Community resistance to technological changes and new conservation practices is also a challenge, although this level of resistance is still in the moderate category. [11] identifies that of all industrial sectors in the blue economy, Indonesia has not fully developed the renewable energy, bio-economy, and biotechnology sectors optimally, reflecting similar challenges in the implementation of the blue economy concept as a whole.

Water quality conditions that show pollution indexes in the light pollutant category, while still meeting standards, indicate the need for increased conservation efforts and more intensive monitoring. The number of rivers monitored is still limited to seven tributaries with minimal monitoring frequency, so the data collected is not sufficient for long-term trend analysis. The reported declining quality of fish catches is a concern for local fishers and indicates the need for more comprehensive interventions in the management of aquatic ecosystems. Krestiwanda & Utami emphasizing that fishing companies have a social responsibility as stated in point number 12 of the SDGs promoted by the United Nations regarding sustainable consumption and production patterns [12]. The institutional and regulatory aspects show a strong foundation with policies that support long-term sustainability, but implementation on the ground still faces technical and operational constraints. The capacity of human resources that has not been optimal is a critical factor that requires special attention through continuous training and development programs. Limited funding with a budget allocation of only 1.5% of the total regional budget shows the need to increase financial commitment to support the effective implementation of blue accounting. Latifah & Abdullah explained that the green and blue economy plays a role in realizing sustainable development through conservation and environmental conservation efforts with a perspective based on Maqashid al-shari'ah in order to achieve benefits in this world and the hereafter [13].

#### Blue Accounting's Contribution to the Sustainability of the Marine Economy

The contribution of blue accounting to the sustainability of the marine economy in West Kutai Regency shows a measurable positive impact on various aspects of sustainable development. From the economic aspect, the implementation of blue accounting contributes to an increase in aquaculture production which will reach 2,777 tons in 2024, exceeding the target of 2,600 tons or reaching 106.8% of the set target. This increase in production shows the effectiveness of the implementation of blue accounting practices in optimizing the productivity of the fisheries sector without neglecting environmental sustainability aspects. The use of the Cultivator Exchange Rate (NTP) and Break Even Point (BEP) indicators in the evaluation of cultivators' performance provides an objective measure of the community's economic ability to earn income from aquaculture activities. The significant socio-economic impact can be seen from the reduction in the poverty rate by 0.53% and open unemployment which decreased by 0.58%, indicating that the implementation of blue accounting contributes to improving the welfare of coastal communities. This result is in line with the concept of blue economy as explained by Musdalifah et al that the blue economy prioritizes ecosystem sustainability with the main subject being marine resources, and Indonesia sees this concept as an opportunity to take

advantage of the existing potential [10]. The diversification of cultivated fish species including catfish, tilapia, catfish, cork, and jellyfish provides diverse livelihood alternatives for the community, while local fish species such as yellowfin catfish, haruan, gurami mahakam, toman, baung, belida, gentilap, berukung, seluang, jelawat, and kendia show an increasing trend that indicates the sustainability of local fish resources.

From an environmental perspective, the Climate Village program which includes solar power plants (solar power plants), customary forests, and urban parks shows a commitment to environmental sustainability that is integrated with the development of the marine economy. The implementation of the EIA (Environmental Impact Analysis) under supervision by P4LH (Center for Pollution Control and Environmental Destruction Management) ensures that marine economic activities do not damage aquatic ecosystems. Ardiansyah & Umarella emphasized that in the last five years the tourism sector has been able to contribute to Regional Original Income, and the practice of blue accounting is expected to give serious and intensive attention to the management of the marine and fisheries sector [8]. The aspect of community empowerment through training and counseling programs shows an increase in community capacity in managing fishery resources in a sustainable manner. This empowerment not only focuses on the technical aspects of aquaculture, but also includes an understanding of the importance of environmental conservation and responsible fisheries practices. Novrina et al shows that consistency in the implementation of sustainable tourism based on the blue accounting approach can be achieved through activities that reflect the five blue accounting projects and support the achievement of the Sustainable Development Goal No. 14 policy [7]. The contribution of blue accounting is also seen in increasing market access through cooperation with the private sector, which provides wider economic expansion opportunities for local fishery products.

#### Challenges and Opportunities in the Implementation of Blue Accounting

The implementation of blue accounting in the fisheries sector in West Kutai Regency faces various structural challenges that require comprehensive attention and targeted solutions. Data limitations are a major challenge where the available information is not comprehensive to support scientific evidence-based decisionmaking. This condition is exacerbated by the capacity of human resources that is not optimal, so it requires continuous training and development programs to improve competence in blue accounting management. The limited funding with a budget allocation of only 1.5% of the total regional budget shows the need to diversify funding sources through grants and Corporate Social Responsibility (CSR) funds from the private sector. The low public awareness of the importance of sustainable fisheries practices requires intensive socialization programs and effective communication approaches. Other structural challenges include the low level of education of coastal communities, limited access to health, and dependence on the primary sector that make communities vulnerable to changes in economic and environmental conditions. Inadequate technological infrastructure, especially in terms of the stability of internet networks and communication systems, is an obstacle in the implementation of the real-time monitoring system necessary for the effectiveness of blue accounting. Lestari & Suarja emphasizing that local governments need to make budget plans that support the implementation of the blue economy, but there is still a need for equitable distribution to all agencies to achieve optimal implementation [9].

Significant opportunities in the implementation of blue accounting can be seen from the potential for diversification of fisheries businesses which can include the development of agrotourism, processing of fishery products, and the development of marine resources-based creative economy clusters. Expanding market access through cooperation with the private sector provides opportunities to increase the added value of local fishery products and open a wider distribution network. The development of real-time technology through mobile information systems provides opportunities to improve the efficiency of monitoring and decision-making based on actual data. Abdul, 2024 It shows that the application of sustainability and blue economy principles can increase the competitiveness of the marine tourism sector, minimize environmental impacts, and encourage active community participation in protecting marine ecosystems [14]. Opportunities for the development of ecotourism based on marine resources provide sustainable economic alternatives for coastal communities, while increasing awareness of the importance of environmental conservation. Partnerships with research institutions and international organizations such as IPB University and WWF provide access to the latest technologies and methodologies in marine resource management. The company's international grant program and CSR funds provide opportunities to diversify funding sources that can support the sustainability of the blue accounting program. Latifah & Abdullah explained that the green and blue economy is able to strengthen sustainable development as an effort to support national economic resilience, which shows the relevance of the implementation of blue accounting in the context of broader national development. The integration of digital technology-based monitoring systems and the development of mobile applications for fishermen and cultivators provides opportunities to improve operational efficiency and data accuracy. Community capacity building through continuous training programs and competency certification can increase professionalism in the management of the fisheries sector. emphasized that the practice of blue accounting of fisheries companies must focus on the social contract between the company and the community where the company is required to meet the expectations and demands of the community, which can be a development model for the implementation of blue accounting at the local government level [15].

V.

### CONCLUSION

Based on the results of the research and discussions that have been carried out, it can be concluded that the implementation of blue accounting in the fisheries sector of West Kutai Regency is still in the development stage with various levels of implementation in each component. Policy formulation focused on long-term sustainability has been well implemented, reflecting the commitment of local governments to the sustainable management of marine resources. A community-based surveillance system through POKMASWAS has been formed in six coastal sub-districts, but its implementation is still partial with limited monitoring technology. Stakeholder collaboration shows positive aspects through active collaboration with IPB University, WWF, and PT. EBH which provides technical and methodological support. From the economic aspect, the practice of blue accounting contributes significantly to an increase in aquaculture production reaching 2,777 tons in 2024 or 106.8% of the target, accompanied by a decrease in the poverty rate by 0.53% and open unemployment by 0.58%. The use of NTP and BEP indicators provides an objective measure of the economic capabilities of cultivators, while diversification of farmed fish species and local catch indicates the sustainability of fishery resources. The main inhibiting factors include the limitation of critical supervisory human resources, the lack of operational budget (1.5% of the total regional budget), inadequate technological infrastructure, and moderate community resistance to change. The condition of the water quality shows a light pollution index that still meets the standard, but the minimum frequency of monitoring (2 times/year) and the limited number of rivers monitored (7 tributaries) indicate the need to improve a comprehensive monitoring system. To increase the effectiveness of the implementation of blue accounting, it is recommended that local governments increase budget allocation for the fisheries sector and strengthen human resource capacity through continuous training programs. The development of real-time monitoring systems based on digital technology and mobile applications needs to be prioritized to improve data accuracy and supervision efficiency. Intensification of socialization programs to the community is needed to increase awareness of sustainable fisheries practices. Diversification of funding sources through international grants and CSR funds can overcome budget constraints, while the development of ecotourism and tourism provides sustainable economic alternatives. Strengthening partnerships with research institutions and international organizations needs to be maintained for access to the latest technologies and methodologies in sustainable blue accounting management.

# VI. ACKNOWLEDGEMENTS

An acknowledgement section may be presented after the conclusion, if desired.

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