

Situation and Implication of Development Policy Aquaculture - Fishing Industry CA Mau Provice (2015-2020)

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Abstract

In recent years, seafood has become a key economic sector of Ca Mau province. However, the contribution of the marine industry is not commensurate with the potential of the province, especially in the condition that natural resources are exhausted and heavily affected by climate change. Therefore, it is necessary to have specific research to come up with appropriate solutions to promote strongly, effectively, create jobs on the spot and contribute to economic and social development in association with ensuring the environment locally sustainable.

Key-words: Ca Mau, Aquaculture, Fishing.

1. Introduction

Ca Mau is located in the southernmost part of the country, in the Mekong Delta region (the Mekong Delta), with a dense system of rivers with many estuaries. Ca Mau coast is 254 km long, accounting for 7.8% of the length of the country, the sea area and continental shelf are over 70,000 km², adjacent to international waters and many countries in Southeast Asia, the sea has marine reserves. large and rich in other resources, favorable for marine economic development, shipping and tourism. Ca Mau has a flooded forest ecosystem with an area of over 100,000 hectares of forests with the characteristics of the second largest mangrove forest at the cape of Ca Mau in the world; Melaleuca forest in U Minh Ha is a primeval forest with a variety of rich and rare animals and plants. Ca Mau

forest has the value of balancing the ecological environment for the sustainable development of the whole region, scientific research, and ecotourism. Forests and seas have great potential and are typical of the province; Currently, Ca Mau is advocating to invite investors to visit, cooperate and exploit the potential.

By 2019, the economic structure of Ca Mau province is: agriculture - fishery 29.2%, industry - construction 26.1%, services 40.9%, import tax, product tax 3.8 %. In the structure of the agricultural economy, the proportion of the fishery economy accounts for over 80% and is the most important economic sector of the province. Ca Mau's export value ranks first in the Mekong Delta region and accounts for over 20% of the country's total export value. The fishing ground of Ca Mau is from Ganh Hao to Hon Khoai and from Hon Khoai to Hon Chuoi, the offshore fishing ground is mainly in the area between latitude 6°00'-10°00' and longitude 102°00' - 105°00'. The total fishing production of 2019 is 567,500 tons, (in which, shrimp production is 280,000 tons) along with aquaculture production to ensure the source of raw materials for export processing as well as domestic consumption. 4, p.32].

Figure 1 - Administrative Map of Ca Mau Province



Source: <http://camau.gov.vn>

Currently, the organization of fishing in Ca Mau province in particular as well as in many other coastal provinces across the country is still unreasonable, there are not many plans to expand fishing grounds to improve production efficiency. both reduce conflicts between fishing professions, as well as reduce the relatively high level of risk for the fishing industry in general. According to the trend, Ca

Mau fishermen have tried to increase their output, but it is still mainly thanks to the improvement, upgrading or investment in new and modern equipment and machinery, etc., which requires a large amount of investment capital. large investment that not every fisherman can afford, even if it's borrowed, let alone the family's own capital. Moreover, inshore fishery resources, which are already in an alarming state of depletion, continue to suffer from pressure from small-scale and inshore fisheries, even illegal fishing methods. legal, extermination such as the use of explosives, electricity, chemicals... makes the efficiency of the fishing industry in Ca Mau province even more unstable.

The process of developing the seafood sector in Ca Mau province in recent years has achieved achievements, as well as making great contributions to the province's socio-economic development and improving material life. and the spirit of the people. However, it is not commensurate with the potential of a coastal province like Ca Mau. Therefore, assessing the current situation of seafood development in Ca Mau province in the current natural conditions of climate change is an urgent matter of concern.

2. Contents

*****The current situation of aquaculture and aquaculture development in the waters of Ca Mau province over the past time (2015-2020)**

2.1. Potentials and Challenges of Seafood Development in Ca Mau Waters

Potential for Developing Marine and Coastal Seafood

Ca Mau has a long coastline connecting each other from East to West, with three sides facing the sea, convenient for maritime development, transportation services - warehousing, expanding regional trade. Potential for development of industries with advantages associated with the sea and coastal areas such as petroleum refining, metallurgy, auxiliary industries, mechanical engineering, ship repair, energy industry, wind power, thermal power transportation of fuel by sea, production of consumer goods for export, processing of agricultural and aquatic products.

The most abundant resources of sea water and coastal water are provided from both the East and West seas. This is a valuable resource for exploitation, fishing and aquaculture, development of sea and island tourism and marine economic sectors. Salt water is a source of water brought from the sea into water bodies, rivers, canals and canals. This type of water is a valuable resource for aquaculture development, salt making, and mangrove development. The reserve of this water source changes according to the tidal regime (high water, low water), through rivers flowing into the sea. The system

of rivers and streams in the area forms an interlaced and interconnected network to supply water for the whole region.

Challenges Affecting the Aquaculture Sector are Facing

Water resources are at risk of depletion, pressures on clean water sources will create unsustainable factors for development if water resources are not managed in a unified manner and are shared and exploited in a rational manner rational, effective. Moreover, the competition for water demand in many different industries is increasing, in the context of poor water quality, increasing the risk of water shortage and surface water pollution. Urban development, discharge of untreated industrial wastewater, and use of fertilizers and pesticides used in agriculture are currently placing unrelenting pressures on river basins. Regarding the current state of harmful effects caused by water sources, excluding natural disasters, including riverbank and coastal erosion, which occurred on most of the major rivers with serious severity in some coastal sections. and coastal estuaries and drought, fresh water shortage, and saltwater intrusion in some areas. The river system is both a favorable condition for water supply for aquaculture; It is both difficult in the dry season, the risk of saltwater intrusion into the freshwater ecosystem, and it costs a lot to build sluices to prevent saltwater, keep fresh water, and protect production.

Challenges Affecting the Fishing Industry are Facing

Although the fishing industry has potential, it is also facing many difficulties and challenges such as: (1) Fishery resources have decreased significantly compared to before due to over-exploitation in the form of salvage; (2) Weather at sea becomes more and more extreme, storms and tropical depressions appear more and more; (3) Investment resources in fishing infrastructure, science and technology in fishing are not commensurate with the potential (4) Illegal fishing in foreign waters has decreased but still occurs; (5) The situation of free migration in coastal areas continues, most livelihood activities rely on marine resources from the wild, so it is difficult to control, using small means, not Registering with the government, exploiting fully affects the recovery of seafood resources in the long run.

In summary, although Ca Mau has favorable potential to develop marine economy, tourism and agriculture, especially with its geographical location, it helps the province's industries to connect with each other, using the basic infrastructure of the province. Common infrastructure will create higher

efficiency. However, Ca Mau province still has many limitations and challenges for rapid and sustainable development. The province's limitations and challenges include: The economic structure is slowly shifting towards industrialization (reducing the rate of region 1); Low per capita income; The budget depends on the central government with a high percentage (belonging to the high subsidy group); The trained labor force is low, out-migration is higher than in-migration; Weak infrastructure; Fresh water resources are increasingly scarce and difficulties and challenges with fishing; Challenges with climate change, sea level rise and environmental pollution; Links between provinces in the region have not been made to solve common difficulties and effectively use natural resources and develop infrastructure for sustainable development of the region.

2.2. Current Status of Aquaculture Development in Coastal Areas of Ca Mau

After more than 20 years, Ca Mau province implemented the restructuring of production from Agriculture - Fisheries - Forestry to Fisheries - Agriculture - Forestry, with the application of science and technology in production, the value of products created on the same area increased much compared to before the displacement. Aquaculture has developed strongly, aquaculture products are increasingly improved in quality and quantity; production structure gradually shifted in the right direction, forming a number of specialized farming areas. With a total coastline of 254 km, a system of interlaced rivers, with two typical ecosystems, salty and sweet, with a large natural area, creating favorable conditions for Ca Mau to develop rich aquaculture. in terms of species and patterns (salt water from shrimp hugs mangroves, while in freshwater and brackish water areas, shrimp hug rice). With 209,556 hectares of aquaculture concentrated in coastal districts such as Dam Doi, Nam Can, Ngoc Hien, Tran Van Thoi, Phu Tan and U Minh, accounting for about 70% of the total aquaculture area of the province. p.47].

With a long coastline and large alluvial plains, Ca Mau is one of the provinces with the largest aquaculture area in the country, about 302,000 hectares, accounting for nearly 30% of the country and accounting for about 40% of the Mekong Delta. The local industrial shrimp farming area alone has reached nearly 10,000 hectares. In which, the area of super-intensive shrimp farming has increased rapidly, nearly 1,000 hectares, with a yield of more than 50 tons/ha/crop. From there, promptly meet the source of raw materials for factories and enterprises, contributing a large part to the export turnover of the locality [5, p.75].

In the past years, aquaculture in general and the sea area in particular has had strong changes, productivity and output are constantly increasing. In 2019, the province's total marine aquaculture production reached 239.46 thousand tons, an increase of 11.69% compared to 2015, while the output

of the whole province increased only 10.1% [3, tr36]. The proportion of aquaculture production in the sea area increased higher than that of the inland area according to the province's aquaculture area. Almost the aquaculture production of Ca Mau has increased over the years due to the contribution of the coastal aquaculture area (while the aquaculture area has not increased). This shows that aquaculture in coastal areas with the application of high science and technology to increase productivity is one of the key areas in the marine economic development of Ca Mau province in recent years. In the period 2015-2019, the province's marine aquaculture area increased insignificantly by 0.80%, but the output increased by 1.02% [3, p.39]. The proportion of aquaculture production in the sea on average accounts for more than 71% of the total aquaculture production of the province, corresponding to the proportion of the aquaculture area of the sea area (see Table 1).

Table 1 - Aquaculture Production in Ca Mau Province (Thousand Tons)

Year	2015	2016	2017	2018	2019
Total production of farming and mining	499,88	491,04	525,49	550,58	567,50
Total production of farming	306,32	282,04	316,42	335,67	339,25
Aquaculture production in the sea	214,39	196,40	225,19	239,46	241,52
<i>Ratio</i>	69,99%	69,63%	71,17%	71,34%	71,19%

Source: Ca Mau Statistical Yearbook 2019

A detailed analysis of the province's aquaculture situation will help orient the aquaculture value chain and improve linkages to develop the local aquaculture sector in the near future.

* Evaluation of aquaculture activities of Ca Mau:

In general, aquaculture in the waters of Ca Mau in recent years:

Firstly, Ca Mau has a coastal farming area and production that accounts for a large part of the total farming area and has a large output. Always keep the leading position in the Mekong Delta region and the whole country.

Secondly, Ca Mau always maintains stability in terms of farming area and area, meanwhile, the application of science and technology, forms of intensive farming, and application of technology in farming are strongly applied. to increase productivity.

Thirdly, for Ca Mau people, shrimp is always chosen as a key and key development product with many preferential policies and projects implemented in the context of climate change and sea level rise.

Fourthly, Ca Mau has established hi-tech agricultural zones in aquaculture, especially shrimp seed, many high-tech farming models are applied with productivity many times higher than conventional methods. Traditionally deployed and achieved high efficiency, products with high added value such as seeds are increasingly invested and developed.

Fifth, Ca Mau has a large production and farming area, but most of it is the accumulation of farming households, so in reality, farmers' production is still small. Large-scale farming with high scientific and technical applications is increasingly focused, but the proportion is still not high.

Sixth, Ca Mau strengthens control of farming areas and ensures the quality requirements of output products to meet export demand and conditions, as well as develop economic efficiency associated with environmental protection.

Seventh, the level of value chain linkage in input material supply, production deployment and management, procurement and export processing is still incomplete, which increases production costs and reduces competitiveness. exports of the province's export aquatic products.

2.3. Situation of the Fishing Industry in Ca Mau Province

Along with aquaculture, capture fisheries is a key sector and contributes significantly to solving the province's employment problems.

With a coastline twice as long as the two provinces in the Southwest region (Soc Trang 72 km, Bac Lieu 56 km), fishing is a strong point in the fisheries sector of Ca Mau. The province's marine fishing output in 2019 reached 228.25 thousand tons of aquatic products of all kinds, an increase of 11.03% compared to 2015, nearly double Bac Lieu province and 3.5 times higher than Soc Trang province [4, p..58]. However, with the orientation of conserving aquatic resources, the fishing output has not increased sharply in recent years, compared to the total fishery output of the whole province, the proportion of fishing tends to decrease. This shows that the province has paid more attention to farming compared to wild exploitation with increasingly depleted aquatic resources (see Table 2).

Table 2 - Ca Mau Catch (Thousand Tons)

Year	2015	2016	2017	2018	2019
Total production of farming and mining	499,88	491,04	525,49	550,58	567,50
<i>Total production of exploiting/ mining</i>	193,56	209,00	209,07	214,91	228,25
<i>Ratio</i>	38,72%	42,56%	39,79%	39,03%	40,2%

Source: Ca Mau Statistical Yearbook 2019

To achieve the above significant catch, Ca Mau has implemented central support policies for fishermen, reducing fishing costs for fishermen, contributing to improving the efficiency of fishing activities. Local fisheries. By 2019, the province's fleet has 5,578 ships and has almost gradually decreased in the past four years in the direction of not expanding marine fishing.

Compared with the other two localities, the number of fishing vessels of Ca Mau is overwhelming in terms of total number and capacity. In particular, the number of ships increased to nearly 71 in 2019 compared to 2015 all ships with a capacity of over 400 CV. This shows that the province has been more proactive and oriented to increase the fleet of large-capacity vessels that can catch offshore with abundant aquatic resources and higher added value [3, tr45].

In addition to the high economic efficiency brought by the fishing industry, in recent years, there have been a number of problems in sailing trips, fishermen who go fishing at sea do not comply with the regulations. regulations on ensuring the safety of people and fishing vessels, organizations exploiting with explosives, electric pulses, polluting the environment and depleting aquatic resources, seriously violating the provisions of law on marine and fishing.

In particular, the problem of Ca Mau fishing vessels illegally fishing in the waters of other countries in the region and being arrested and handled is increasing, greatly affecting the position of Ca Mau and Vietnam in the international arena economic. At the peak of the above problem, the European Commission (EC) officially withdrew the "Yellow Card" warning for Vietnam's caught seafood products exported to the European market and made recommendations on combating illegal, unreported and unregulated fishing (IUU fishing) on October 23, 2017.

* Evaluation of the province's fishing activities:

Comment on the current situation of fishing in Ca Mau province in recent years:

Firstly, the catch is large, accounting for a relatively high proportion of the total fishery output of the province, making a great contribution to solving employment problems and increasing incomes for people in coastal and border areas. Islands.

Secondly, the central and local governments soon promulgated policies and implemented drastic measures to support fishermen to go offshore, increase fishing output, especially offshore fishing, and take measures to ensure safety. Ensure safety and efficiency when exploiting the sea. And sometimes those mechanisms and policies, in the process of implementation and implementation, are still slow, there are certain inadequacies in some places, causing frustration for people.

Thirdly, the catch is large but the value is not high, the economic efficiency is low because the catches are mainly caught near the shore. The number of modern ships with large capacity has

increased, but rudimentary fishing methods still account for the majority, and the main products are exploited for domestic consumption. Products with high economic value are low.

Fourthly, the center of logistics services for fisheries and marine services has not been developed synchronously, leading to high fishing costs, low value of caught products, and unsecured seafaring profits of people. disease and seasonality, in fact, there is still a situation of good harvest in fishing in Ca Mau.

Fifth, Ca Mau fishermen always lack capital, as well as find it difficult to access support capital and loans from central and local budgets. Linking fishermen and traders, the loss always belongs to the fishermen exploiting seafood and suffering from the situation of the traders, who cover the whole package, press the price.

Sixth, seafood resources decline: Due to over-exploitation, extermination by trawling, electric pulses, fishing in the spawning season, fishing in restricted areas, etc., the number of fishing boats has increased rapidly. in the past years.

Seventh, Low level of education: Some captains, crew members, and fishermen still do not know the coordinates of Vietnam's waters with other countries in the region, so when following the traces of fish channels, they accidentally encroached on the sea. to the waters of other countries, especially the overlapping areas of Vietnam - Malaysia - Indonesia. Fishermen's sense of self-discipline to comply with the law is not high. On the other hand, countries in the region still treat our fishermen in a humane spirit and the state still has no strict sanctions to create a deterrent, so fishermen are still subjective.

3. Policy Implications for Ca Mau Aquaculture and Fishing in the Context of Current Climate Change

3.1. Aquaculture Development

Ca Mau with the leading position of aquaculture in the Mekong Delta region, as well as the whole country. With favorable conditions and available development platforms, in order to promote the development of focused and focused aquaculture fields. In the future, the province needs to focus on the following issues:

- Selecting the main product is the shrimp industry, orienting to develop quality seed to meet the needs of good and healthy seed sources for people in the aquaculture area with the Agricultural Park applying high technology to develop shrimp. and move towards building into the center of shrimp industry and shrimp urban area.

- Developing models of semi-intensive, intensive and super-intensive shrimp farming with the application of high science and technology throughout the province with an automatic control system by computer to increase productivity. certification (ASC, MSC, CoC,...) and ensure the specifications of exported shrimp.
- Development of aquaculture seed production, especially shrimp, orientation and planning centers for research, production and supply of aquatic breeds for the whole province, as well as the Mekong Delta and the whole country.
- Training farmers on searching, analyzing and processing information, and at the same time supporting farmers to access the focal points of product consumption and supply of materials through a team of managers and promotion staff. Farmers are those who directly work with farmers, have a great role in consulting and transferring techniques to farmers such as: seeds, techniques, market prices, equipment and materials, and weather information. Climate, water, soil...

3.2. Developing the Fishing Industry

Going offshore continues to be considered a priority policy in marine economic development. Key solutions that need attention in the coming time to promote effective and sustainable marine exploitation:

- Develop long-term and medium-term projects to develop marine services and fisheries logistics in the coming time. Developing marine services to support fishing activities such as storm shelters, modern fishing ports, rescue services, fisheries logistics services, direct service provision at sea to reduce costs for fishermen.
- Transforming the fleet structure and reasonable occupational structure for exploitation of the lowland areas, increasing the exploitation capacity of the high seas, applying high technology, developing the number of ships with large capacity for long-term fishing and the high seas. deep, far sea;
- Direct exchanges with people in coastal areas in changing occupations and creating alternative livelihoods for some fisheries in coastal waters; reduce pressure, create jobs with new and stable occupations, improve fishermen's living standards and enhance responsibility to protect aquatic resources and ecological environment in coastal waters, especially protection of spawning grounds of individuals. in the breeding season.
- Modernize tools for fishing at sea, develop production at sea according to the cooperative

economic model (fishing groups and teams) combined with service models at sea, building to build a number of strong enterprises engaged in offshore fishing and cooperation in offshore exploitation, and at the same time support each other when incidents occur, ensuring the safety of people and fishing vessels operating at sea.

- Fisheries development planning must be associated with the task of protecting natural resources and rationally using resources, without degrading the environment, preserving the diversity of the ecosystem. To strengthen the protection of fishery resources, it is necessary to encourage selective fishing and rational use. Effectively strengthen measures to inspect, detect and handle violations of fishing with destructive fishing gear.
- Reasonable exploitation of aquatic resources must go hand in hand with the protection and regeneration of natural resources. The annual stocking of aquatic resources with indigenous aquatic species such as black tiger shrimp, white shrimp, crab, fish, etc., has great significance in restoring natural resources on a daily basis. Being exploited more and more and increasing the production of fishery resources of economic value. Establish conservation areas for native aquatic species, endangered or endangered species in each ecoregion.
- Strengthening aquaculture to reduce fishing pressure: Stemming from the reality in the Ca Mau peninsula, it is necessary to change and choose a farming model towards sustainability and environmental friendliness. Develop models of rotational farming of 1 rice crop and 1 shrimp crop for household economic development. It is necessary to clearly zonate production, to establish closed dike investment projects for stable rice growing areas. Coordinate the rational operation of irrigation works systems, actively regulate water to serve efficient production models, step by step towards building a brand of ecological, stable and sustainable products.

4. Conclusion

Ca Mau sea area is one of the largest sea areas of Vietnam, playing a particularly important role in the strategy of socio-economic development, security and defense of the country. As a key seafood export area, especially the shrimp industry, Ca Mau has focused on investing in applying science and technology to farming, catching and exploiting aquatic resources, and at the same time developing transportation infrastructure, logistics, capital and all other resources to promote the seafood economy. Over the years, with continuous efforts, Ca Mau seafood export turnover has achieved strong growth in output and value. Contributing to raising income for the people of the province in general and improving the material and spiritual life of the people of the coastal region in particular.

However, the conditions for promoting the development of aquaculture and fishing are not really sustainable, production is fragmented and small, especially depending too much on the complex natural environment today. In order to have an appropriate strategy and orientation, it is necessary to have a more specific assessment of the current status of the aquaculture and fishing system in the whole province of Ca Mau, especially focusing on the Ca Mau shrimp - the key products, the main export of the province.

Acknowledgement

Thank you editors, friends to assist this publishing.

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