The Republic of The Union of Myanmar

Ministry of Agriculture, Livestock and Irrigation

Department of Fisheries

Fishery Statistics 2023

THE REPUBLIC OF THE UNION OF MYANMAR

MINISTRY OF AGRICULTURE , LIVESTOCK AND IRRIGATION

FISHERY STATISTICS

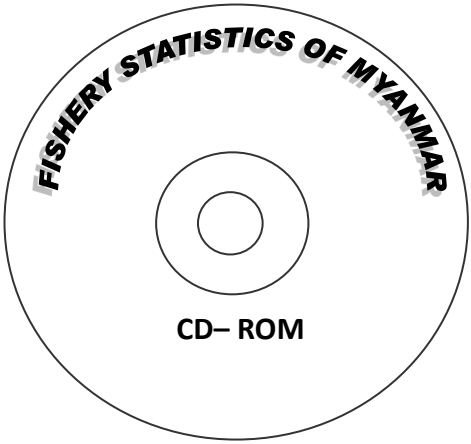
2023

Department of Fisheries

Myanmar

AVAILABLE NOW

MYANMAR FISHERY STATISTICS



The CDs are currently available in English only. Hence, for further information please contact the Department of Fisheries, The Republic of the Union of Myanmar, as address given below.

Department of Fisheries

Ministry of Agriculture, Livestock and Irrigation

Office's Building No. (36) Nay Pyi Taw, The Republic of the Union of Myanmar.

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FOREWORD

The Myanmar Fisheries Statistics has been annually published by the Department of Fisheries, Ministry of Agriculture, Livestock and Irrigation, since the fiscal year 2001-2002. We are proud to present the latest edition of Myanmar Fisheries Statistics booklet for the fiscal year 2023-2024, reflecting our continued commitment to providing valuable resources that support the development of the fisheries sector in Myanmar.

The primary objective of this publication is to present comprehensive data and information for the current fiscal year, along with ten years of historical fisheries production data. This concise booklet serves as a vital resource for all stakeholders in the fisheries sector, both directly and indirectly involved. It enables users to access both current and past production data, facilitating informed decision-making.

Furthermore, this publication is designed to assist in the formulation of short, medium and long-term plans aimed at promoting sustainable fisheries management. It emphasizes the critical connections between secure fishery production, income generation, and the livelihoods of fisheries community. By providing this data, we aim to support effective management and conservation of our fishery resources for the benefit of current and future generations.

On behalf of the Department of Fisheries, I would like to extend my heartfelt gratitude to U Min Naung, Union Minister for the Ministry of Agriculture, Livestock and Irrigation, for his invaluable direction and guidance in the preparation of this booklet. I would also like to express my deepest appreciation to Dr. Aung Gyi, Deputy Minister, and U Kyaw Min Oo, Permanent Secretary of the Ministry, for their continuous support and guidance during this booklet preparation.

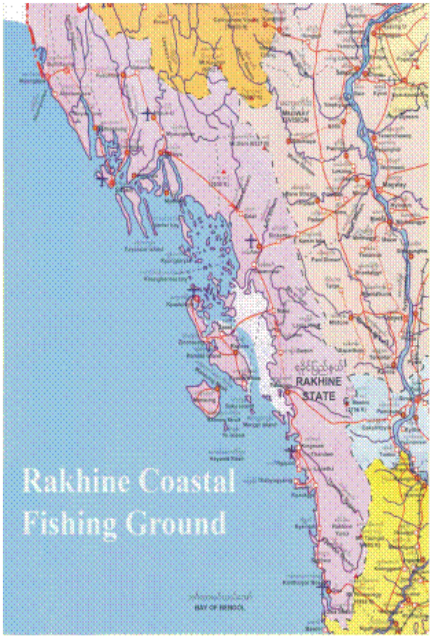
Additionally, special thanks are due to U Myint Zin Htoo, Deputy Director-General, along with all the Directors of the Department of Fisheries, and to the dedicated staff of relevant departments. Their collective contributions and hard works were instrumental in the successful completion of this publication.

Wai Lin Maung
Director-General
Department of Fisheries

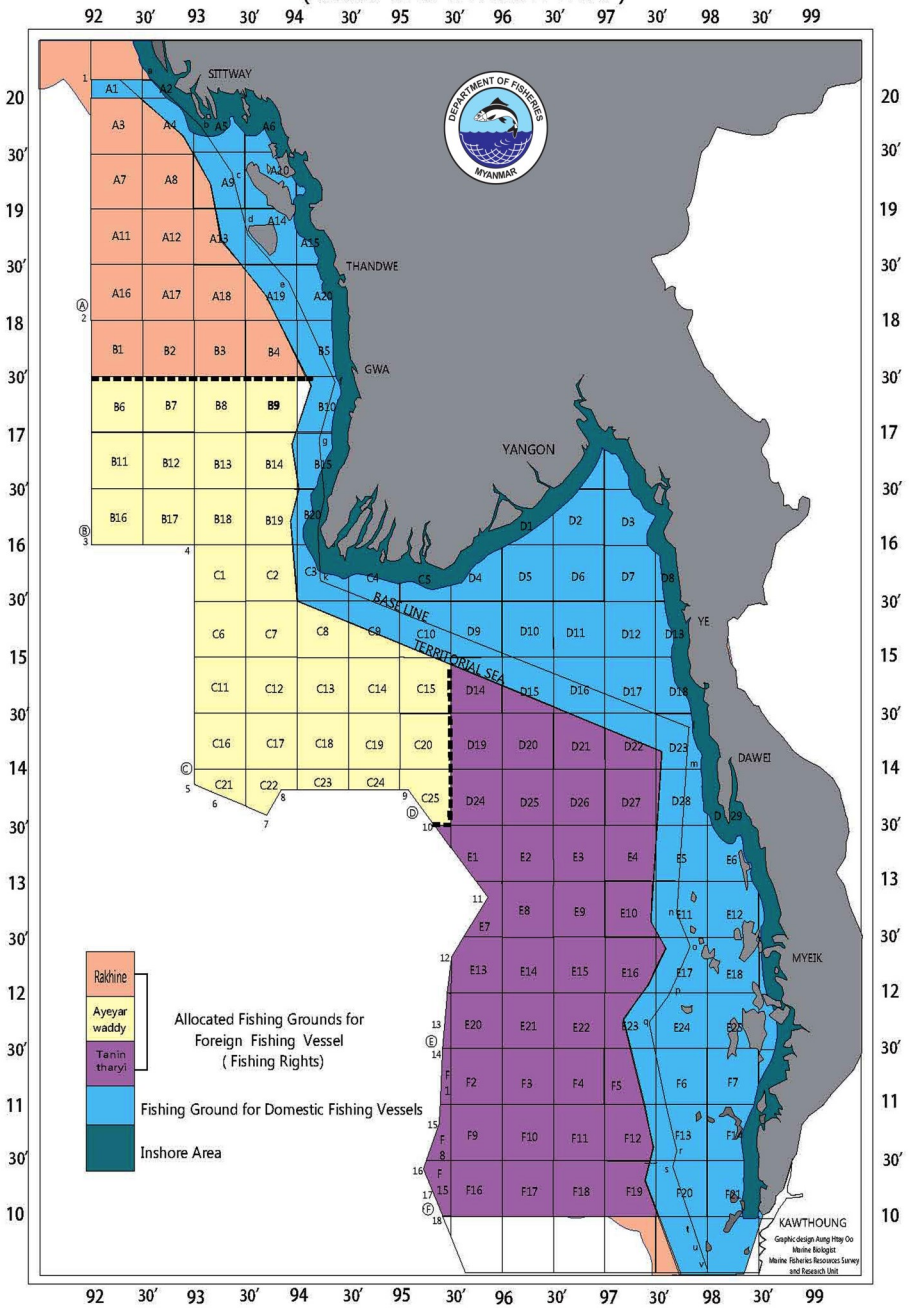
November 1 , 2024

THE REPUBLIC OF THE UNION OF MYANMAR

MAPS OF FISHING GROUNDS

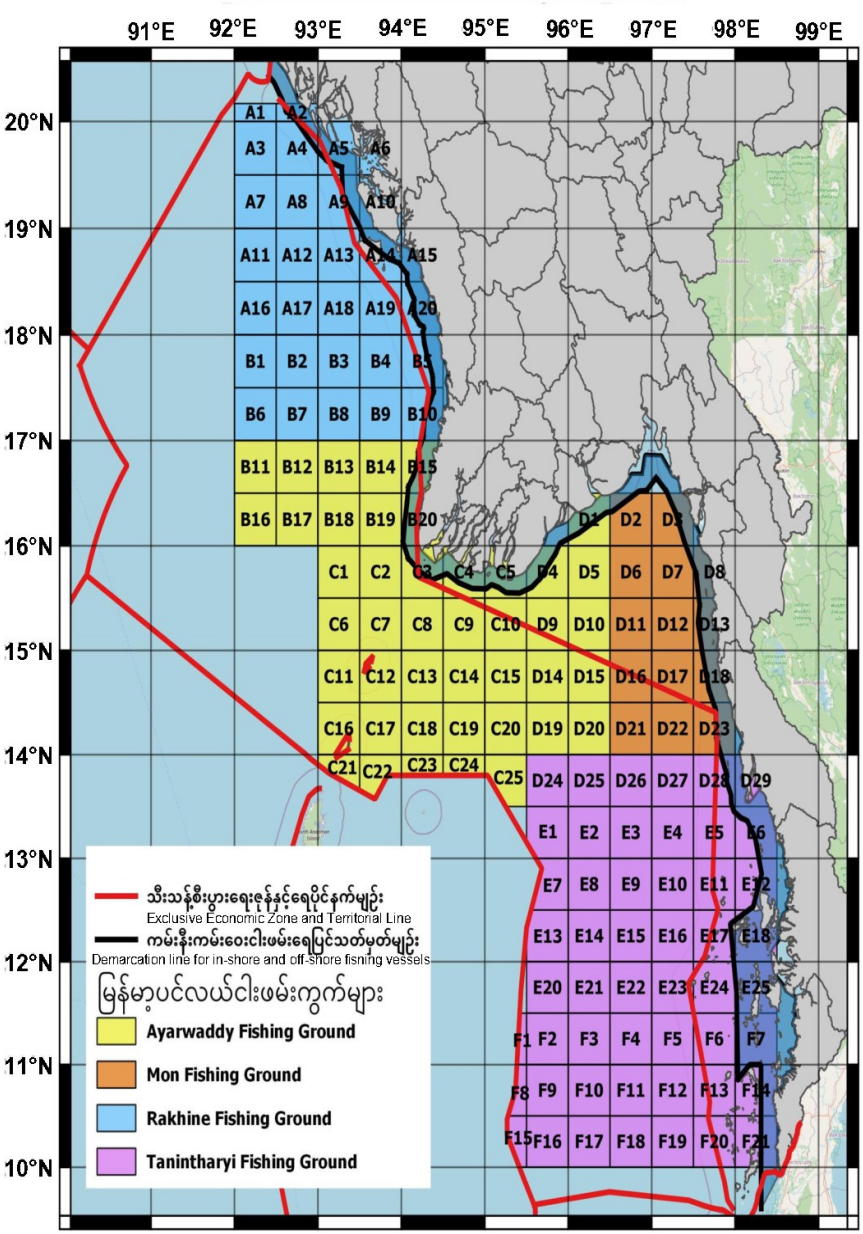


Department of Fisheries
Fishing Grounds of Myanmar
(State and Division wise)



Department of Fisheries

Fishing Grounds of Myanmar



FISHERY BRIEF IN MYANMAR

Background History of Department of Fisheries

Originally, Department of Fisheries is organized with the objectives of the conservation of fisheries resources, food security of sustainable fish consumption and contribution of aqua-culture technology for the people.

As the fisheries project section, Department of Fisheries was established with 6 officers and 70 staffs under Land and Rural Development Cooperation since June, 1954. On the date of 24th March 1961, Department of Fisheries was extended as Fisheries Division under Land and Rural Development Cooperation leading by one director including 9 officers and 183 staffs.

After emerging of new administrative system, Fisheries Division was transformed as Depart-ment of Fisheries leading by Director General with 9 officers and 183 staffs since 15th March 1972. In November 1984, temporary task force for the plan of action on revenue of fishing gear licenses was temporarily organized with the number of 216 staffs within 1984-85 fiscal year and 1986-87 fiscal year. Since April, 1985, the total numbers of 89 staffs from aquarium staffs under People's Workforce Rehabilitation Association were transferred to Department of Fisheries under the Ministry of Agriculture and Forestry Affair.

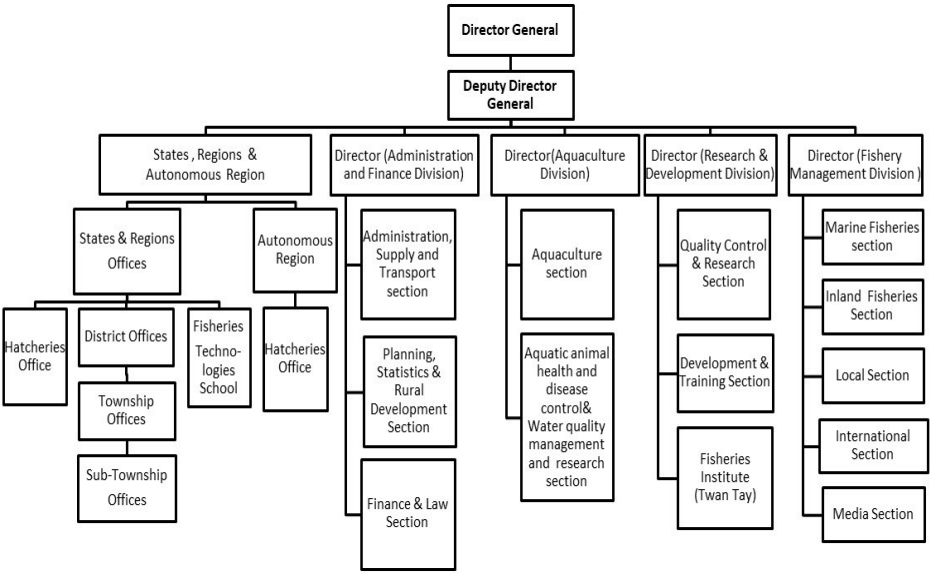
Under the State Law and Restoration Council, the Department of Fisheries was allowed to extend his organization structure with 103 officers and 1251 staffs in line with the increasing duties and responsibilities at 31st January 1990. Since April, 1990, total numbers of 129 employees from resources survey section, aquaculture research and production section and Institute of fishing technology from Myanmar Fisheries Enterprise were transferred to Department of Fisheries under the Ministry of Livestock and Fisheries.

Then, two officers and 82 staffs from Fisheries Institute of Agriculture Industry and Vocational Education Department under Ministry of Education were transferred into the workforces of Department of Fisheries under Ministry of Livestock and Fisheries on 1st January 1997.

The organization structure of the Department of Fisheries was again reorganized with 191 officers and 1638 staffs in April, 2002. In August 2012, the Department of Fisheries was extended with the 196 officers and 1704 staffs introduced with the new organization structure of Nay Pyi Taw Council Area (5 officers and 66 staffs). Since May, 2014, the recent organization structure of the Department of Fisheries was restructured again with 365 officers and 2104 staffs. In 2023, the structure of the Department of Fisheries it was creation of new structure of the Fisheries Institute (Twan Tay) and on July 13, 2023, the Fisheries Institute (Twan Tay) was allowed to be expanded by 17 officers and 90 staffs. Currently, the organization structure of Department of Fisheries was (382)officers and (2194) staffs.

ORGANIZATIONAL STRUCTURE OF DEPARTMENT OF FISHERIES, MYANMAR

Officer	Other	Total
382	2194	2576



Vision, Objectives, Policy and Plans

The Vision, Objectives, Policies and Plans are as follows;

Vision

Sustainable development of fisheries sector for security, improvement of the socio-economic of rural people and contribution to the economic development of the nation based on fisheries industry.

Objectives

a. Promulgation of fisheries laws and implementation of action plans in line with the sustainable development goals.

b. Availability of qualified information and collection of statistical data related to fisheries sector in line with the standard indicators.

c. Systematic implementation of fisheries co-management and ecosystem approach to improve the fisheries management.

d. Development of aquaculture industry by implementation of advanced techniques including Good Aquaculture Practices.

e. The implementation of research and development, extension and awareness services, and human resources development oriented towards sustainable use of fisheries resources.

f. The compliance with quality standards of fishery products aligned with the market requirements.

Policy

Ensuring food security, food safety and sustainable development of fisheries sector by conservation of fisheries resources in accordance with the fisheries laws.

Plans

a. For fisheries development, collaboration with local, international

b. The compliance of the fisheries laws and rules and regulations amended, updated and aligned with international standards, best practice and provisions.

c. Processing of fisheries statistical data to meet the requirements of the standard indicators of related Ministries.

d. Obtaining technical assistance from local and international organizations for the development of a system for data collection, analysis and information dissemination system for fisheries management.

e. The establishment of accurate operational frame work for systematic improvement and implementation of fisheries co-management and ecosystem approach to fisheries management.

f. Implementation of the fisheries co-management and ecosystem approach to fisheries management, by promoting community fisheries organizations and their fisheries co-management committees, capacity building, gender promotion (women empowerment) and provision of technical assistance to fisheries sector.

g. Implementation of National Plan of Action Combating Illegal, Unreported and Unregulated (IUU) Fishing.

h. Promoting collaboration with related Ministries, Local, Regional and International Organizations for the implementation of the International, and Regional provisions, ASEAN declarations and commitments.

i. Promotion of conservation areas for marine and freshwater resources in critically important habitats.

j. Promotion of community fisheries organizations for improved fisheries resource management and rural development.

k. Allowing import of high quality fish/ shrimp seeds and brood-stock and producing genetically improved fish species.

l. Conservation of indigenous fish species and conducting research in breeding and culture of those species.

m. Cooperation with public, private and local/ international organizations for the promotion of sustainable fresh water and marine aquaculture industries.

n. Adoption of climate-smart fish species and their related breeding and culture techniques.

o. Cooperation with regional and international organizations for preventing and controlling of fish and shrimp diseases.

p. Encouraging the production and extensive application of qualified compound feed in aquaculture sub-sector.

q. Strengthening human resources development, by enhancement of fisheries related technical and vocational training (T-Vet), pre-employment training (PET), and on job training (OJT).

r. Conducting routine research on marine and freshwater habitats for fish species identification and stock assessment.

s. Enhancing research activities in support of fisheries management and development.

t. Conducting research in conservation and protection of enlisted endangered aquatic species and their habitats.

u. Strengthening development and research by promoting cooperation with international and regional scientific and best practice organizations.

v. Facilitating export of fishery products in accordance with the regional and international market requirements, and in compliance with Sanitary and Phyto-Sanitary (SPS) agreements and standards of the World Trade Organization.

w. Monitoring and controlling the production and processing of fishery products in line with the food safety standards of importing countries, and as documented in the official control manual of Department of Fisheries.

x. Providing technical assistance to Small and Medium Enterprises for the improvement of quantity and quality of fishery products.

y. Ensuring maintenance and enhancement of the capacities of Laboratories recognized by international ISO: 17025 certification for control and inspection of quality fishery products.

Fisheries in Myanmar

Type of Fisheries in Myanmar

Fisheries sector classified into three categories, there are namely fresh water inland fisheries, marine fisheries and aquaculture. Inland fisheries consist of leasable fisheries and open fisheries. Leasable fisheries are prominent and mainly produce the freshwater fish. Leasable fisheries can be conducted for the management of indigenous fish and fisheries habitat conservation, capture based system for sustainable fish production. Open fisheries can be permitted for small scale and subsistence fisher only.

Marine fisheries include in-shore fisheries and off-shore fisheries. In the inshore fisheries, the fishing boats operate within from shoreline to (10) nautical miles . In this area, the fishing boat which is built by traditional type with not more than 40 feet long or using less than a 50 HP engine power, operates for fishing. The fishing gears for using are driftnet, gillnet and long line. In offshore fisheries, the offshore fishing vessels operate beyond from outer limit of the inshore fishing zone to the Exclusive Economic Zone (EEZ). The fishing vessels are more than 40 feet long or using more than 50 HP engine operating in offshore area. In this area, the commercial fishing gears are trawl net, purse seine, and long line.

There are two major aquaculture systems practiced in Myanmar i. e freshwater pond and brackish water pond culture. Aquaculture especially freshwater finfish farming is mainly conducted with pond based culture system. In addition to pond based aquaculture, soft-shelled crab and seaweed farming operated coastal areas. There are over 27 government hatcheries managed by the Department of Fisheries and over 43 private hatcheries producing fish and shrimp/prawn post larvae operating in Myanmar.

Management of Fisheries

Department of Fisheries (DoF) is responsible for the management of fisheries, conservation of fishery resources, providing extension services, conduct research, compilation of fishery statistics and to upgrade the socio-economic status of fishery communities by Department itself as well as through collaboration/ corporation arrangement with fishery related agency/organization both local and

abroad in order to meet with sustainable fishery development in the country.

Legal Affairs

There are four relevant fisheries laws promulgated by the Government of Myanmar to manage the fishery industry and to protect the fishery resources more efficiently.

No.	Year enacted	Name of Fisheries Laws
1	1989	Law relating to the fishing rights of foreign fishing vessels
2	1989	Aquaculture Law
3	1990	Myanmar Marine Fisheries Law
4	1991	Freshwater Fisheries Law

After enacted these four fisheries laws, the Government of Myanmar promulgated the two amending laws. These are as follows:

No.	Year enacted	Name of Amending Laws
1.	1993	Law amending the Myanmar Marine Fisheries Law
2.	1993	Law amending the law relating to the fishing rights of foreign fishing vessels

Among four existing fishery laws, have empowered Freshwater Fishery Law to respective regions and states authorities and combined Law Relating to the Fishing Rights of Foreign Fishing Vessels and Myanmar Marine Fishery Law and amending to Union Fishery Law (Draft). Also, amending draft of Aquaculture Law for modernization.

The last situation of Marine Fisheries law (bill), sent the suggestion about the Ministry of Legal Affair. And also Aquaculture development law (bill) and then sent to the Ministry of Legal Affair.

FISHERIES MANAGEMENT DIVISION

Department of fisheries is responsible for the development of fisheries sectors including the conservation and rehabilitation of fisheries resources, promotion of fisheries resources survey, collection of fisheries statistics and information, supervision of fisheries sectors. Taking into account for these responsibilities, Fisheries Management Division has been conducting fisheries management measures for sustainable utilization of marine fisheries resources are as follows:

- Supervision on fishing vessel license and registration.
- Licensing by fishing gears and vessel records.
- Vessel marking by fishing ground.
- Restrictions on the issuance of new fishing licenses.
- Limit on new construction of fishing vessels.
- Implementation of closed season and closed area.
- Establishment of fish protected areas.
- Prohibit fishing gear, method, species, mesh size and fishing days.
- Issuance of Catch Certificate for marine capture products.
- Monitoring on check in check out system, log book and sailing orders.
- Management of offshore fishing and carrier vessels through the VMS system.
- Maintaining records of research in fisheries.

Conservation of Marine Fisheries Resources

In order to preserve fish resources within Myanmar's marine fisheries waters and ensure sustainable fishing practices, the Department of Fisheries, under the Ministry of Livestock and Irrigation, has been working on establishing closed fishing seasons and areas since 1993-94. Following stakeholder workshops and meetings from 2012-2013, all fishing areas within Myanmar's seas have been designated as no-fishing zones. This designation has allowed for a gradual reduction in fishing activities annually until 2017-2018. However, as of the 2018-2019 period to the present, a complete ban on fishing activities has been enforced for a three-month duration as part of the designated no-fishing season.

10 FISHERIES MANAGEMENT DIVISION

Prevent, deter and eliminate of IUU Fishing in Myanmar

The Department of Fisheries collaborates with international and regional organizations to manage marine capture fisheries by applying international law and existing Myanmar Marine Fisheries Law. The Council of the European Union established regulations 1005/2008 and 1010/2009, creating a community system to prevent, deter, and eliminate IUU fishing. The European Commission initiated a program for a catch certification scheme to export fisheries products on January 1, 2010, and Myanmar was included in the list of flag state notifications since March 31, 2010. Following EU regulations 1005/2008 and 1010/2009, the Department of Fisheries has implemented the catch certification scheme to combat IUU fishing in line with EU regulations, assisted by an EU consultant.

The ASEAN Catch Documentation Scheme (eACDS) pilot program was initiated in 2018 at two landing sites: Ei Phyo Yadana Landing Site and Ngwe Pinle Landing Site in Yangon. The SEAFDEC eACDS team visited Myanmar three times during 2018 and 2019 to collect necessary information for the development of the eACDS application. Myanmar supports the promotion of the eACDS application to combat IUU fishing and enhance intra-regional and international trade in fish and fishery products. Additionally, it will develop information sharing within the region as well as internationally to combat IUU fishing and illegal trade.

Monitoring and inspection of the fishing vessel monitoring and control system (Vessel Monitoring System):

The installation of the Vessel Monitoring System (VMS) commenced in 2019, coinciding with the start of the 2019-2020 fishing season. Installation began on September 1st, and by January 31st, 2020, all carrier vessels engaged in off-shore fishing were equipped with VMS equipment. Furthermore, offshore fishing vessels operating within Myanmar's marine waters have been monitored by the VMS

Control Center in Naypyitaw, under the Department of Fisheries (Headquarters) with additional oversight provided by five VMS Sub-Control Centers situated in coastal regions/states.

Issuance of a catch certificate to certify that aquatic products are legally obtained from Myanmar:

Since 1st April 2010, the Department of Fisheries has undertaken the issuance of catch certificates in compliance with regulations stipulated by the European Union to prevent illegal fishing products from entering the supply chain. Commencing on 1st September 2016, catch certificates have been issued for aquatic products exported from Myanmar to Thailand and other foreign countries, such as Middle Eastern nations and Europe. Additionally, since 1st September 2024, the Department of Fisheries of Myanmar and Thailand have been cooperating to verify Product Movement Documents daily in order to prevent illegal trade.

Designation of weather shelter area for offshore/inshore fishing vessels

The Department of Fisheries annually publishes the designation of weather shelters for local and foreign offshore fishing vessels, as well as inshore fishing vessels, engaged in fishing in Myanmar's sea fisheries waters. This ensures that fishing vessels and fishermen can safely stay on islands during bad monsoon weather.

AQUACULTURE DIVISION

Aquaculture is important for contribution to food security and nutrition in Myanmar. Myanmar depends heavily on the aquaculture sub-sector, as a critical contributor to national and regional socio and economic development with contributions to the rural economy.

The structure of Aquaculture Division comprises with Fish and Shrimp Culture Section, Aquatic Animal Health and Disease Control Section, Freshwater Fish Research Section and Crocodile Farm. The main responsibilities of Aquaculture Division are:

- to produce good quality fish and prawn/shrimp seeds for fish farmers,
- to ensure replenishment of fish and shrimp seeds into the natural water bodies such as rivers and lakes and men-made water bodies such as reservoirs and dams for enrichment of fisheries resources,
- to conduct researches of potential marine and fresh-water aquatic species for aquaculture development,
- to contribute and transfer of basic and applicable aquaculture technology to fish farmers and
- to conduct environment-friendly and sustainable aquaculture methods such as Good Aquaculture Practices (GAqP) to align with ASEAN Guidelines of Good Aquaculture Practices and international market requirement.

Duty and function of Aquaculture Division

a. Producing of good quality fish and shrimp seeds by DoF fisheries stations,
b. To ensure conservation of fisheries or sustainable aquatic resources by the releasing of hatchery produced fish and shrimp seeds to natural water body,
c. Formal services of analyzing water and soil quality for fish pond management and diagnose the fish and shrimp diseases, giving guidance of disease control and prevention for fish farmers,
d. Monitoring, control and given good management and regulation on aquaculture industry,
e. Strengthening good management for the development of environment-friendly aquaculture system and the encourage of cultured based capture

fisheries to increase of fish production,

f. Issuing legislation and regulation as the requirements of current situation and emerging issues,

g. Supervision of expertise for the establishment of short-term and/or long-term aquaculture development programs,

h. Data collecting, recording and analyzing on aquaculture areas for the whole country, land use right status of whole country and fish and shrimp seeds production from DoF fisheries stations and private hatcheries,

i. Increase implementation of the National Standard of Good Aquaculture Practices (GAqP) in compliance with the international and ASEAN guide-lines of Good Aquaculture Practices (GAqP)

j. Support to conduct trainings of basic fish farming and fish breeding technology for local fish farmers and capacity building of skillful technology and techniques of aquaculture systems,

k. Seeking the improved technologies of aquaculture and providing extension and training for sustainable development and expanding of aquaculture industry as a whole,

l. Data collecting and managing to be able to fully imposing of revenue for aquaculture registration,

m. Regularly observing the aquaculture industry development as a whole and recording and reporting the extraordinary phenomenon of climate change impacts on aquaculture industry and emerging fish diseases to prevent and adapt from these impacts..

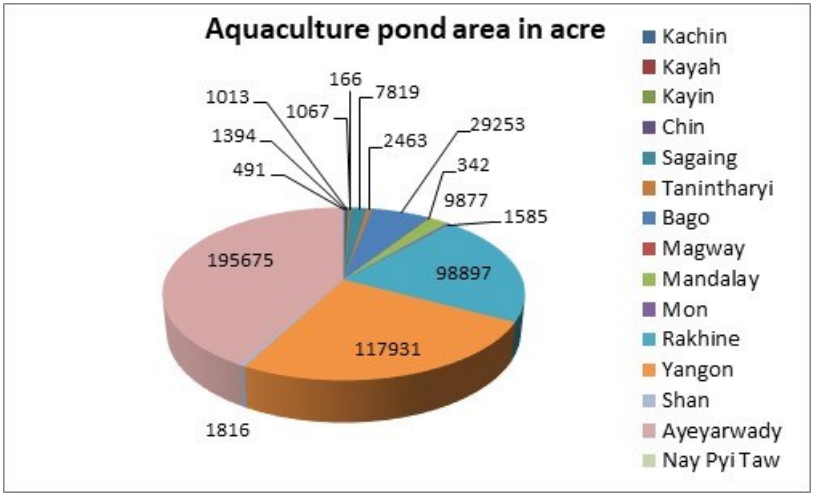
Freshwater Aquaculture

First attempts of fish culture were made in 1954 with the exotic species like common carp, tilapia and gourami. Myanmar has high quality fishes like major carps such as rohu (*Labeo rohita*), catla (*Catla catla*), mrigal (*Cirrhinus mrigala*), butter catfish(*Silonia silondia*) etc, but scientific technology was not well established among the local farmers. Later, in 1968, induced breeding of indigenous major carps was successfully conducted. Currently over 20 species of freshwater fishes including common carp, Indian major carps, Chinese major carps, Tilapia, Pangasius and walking catfishes and Pacu are being cultured. Rohu *(Labeo rohita)* withstands

as the most common and commercial cultured species which is native to Myanmar. Actually the collection of fry and fingerlings from the wild has not been permitted so as to conserve and enhance the natural fish stocks. This is as a measure of follow- up of the Law Relating to Aquaculture that was promulgated in 1990. In order to promote and distribute the quality fish seed, DoF has tried to upgrade the brood stocks quality by proper management through its 27 fishery stations that are conducting seed production and providing technical assistance to farmers.

The potential important freshwater fishes such as *Heteropneustes fossilis* (Stinging Catfish), *Ompok bimaculatus* (Sheat fish), *Notopterus notopterus* (featherback), *Cyprinus intha* (Nga phane), *Trichogaster pectoralis* (Snake skin gourami), *Pangasius bacourti* (Basa catfish), *Prochilodus lineatus (Taung paw nga tha lott)*, *Leptobarbus hoevenii* (Sultan fish) were successfully induced breeding by experimental scale.

Aquaculture production represents 18% of the total fisheries industry in Myanmar. The actual aquaculture area was about 469790 acres and the production of aquaculture was 1211020 MT in 2023-2024. Most of the commercial fish and shrimp farming are conducting in lower part of the country, especially Yangon, Bago, Ayeyarwaddy and Rakhine.



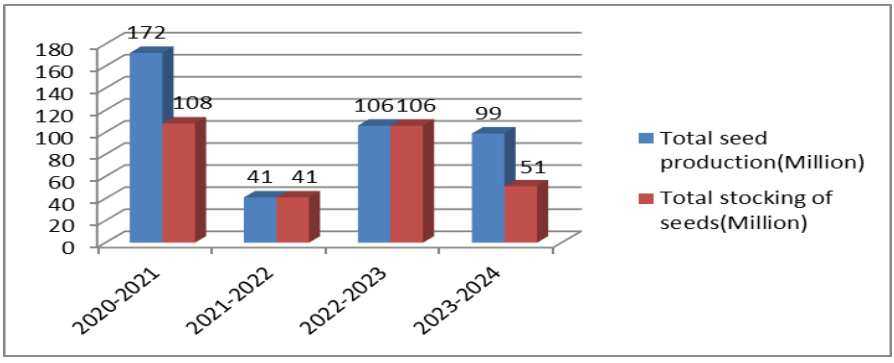
Workforce

In the field of aquaculture, a total of 29086 fish and shrimp farmers were involved in various aquaculture systems. Due to Myanmar's aquaculture is mainly based on pond cultured system, mostly men labours are working in fish/shrimp ponds. There are 63664 number of permanent men labours working in 2023-2024 fiscal year.

Fish Fry and Fingerling Production

At present 26 freshwater fishery stations under Department of Fisheries are operating in all strategic areas, and conducting seed production and stock enhancement activities in order to enhance aquaculture industry. In 2023-2024 the DoF hatcheries produced 98.72 million fingerling (2 inches) size of freshwater fish and totally 43 private hatcheries around Myanmar had produced an impressive amount of 2665 million of fry and 151 million of fingerling size of fish species.

The Department of Fisheries has made a resource management strategy that is to conduct stock enhancement in the natural water body including men-made reservoirs and main river system. Thus the quality fish species may establish in these waters and may assist in the food security and improvement of livelihood of people in the rural areas. In 2023-2024, the 50 % of the total fish seed production were replenished to the natural water bodies for stock enhancement and the remaining 50% of fish seed were sold and distributed to fish farmers by reasonable prices. Data on production and stocking of seeds from 2020-2021 to 2023-2024 appears as a graph there under.



16 AQUACULTURE DIVISION

Freshwater prawn culture

The most common and prioritized species is commercially important giant freshwater prawn, *Macrobrachium rosenbergii.* Monoculture of *M. rosenbergii* was conducted on semi-intensive level by a few farmers and productivity was better than polyculture system. The hatchery operation and culture technique become well established in government and private sector. Recent year, many fish farmer's benefits from poly -culture of freshwater prawn and major carps due to reasonable price of freshwater prawn. Therefore, freshwater prawn seeds requirement is increasing in recent years. Many backyard hatcheries for freshwater prawn are being set up to fill up the gap of high demand freshwater prawn seeds but last year, most of the fresh-water prawn hatcheries were encountered the low survival rate due to disease infection from the brood stock and impact of climate change.

Shrimp Culture

Penaeus monodon has been initiated since early 1980 practicing trap and hold method particularly in western coastal area. Natural post-larvae of *Penaeus monodon* were trapped into the pond during the high tide period through sluice gates. There were no inputs in terms of pond preparation, eradication of predators, water fertilization, feeding etc. However 70 to 123 kilograms of large size of shrimp per hectare of culture area were harvested. As the ponds were usually as large as 123.55 acre to 247.11 acre. Having no laws concerned with aquaculture, those shrimp ponds existed as illegal ponds up to 1990. In the year 2000, the Ministry of Livestock and Fisheries reinforced and encouraged many potential investors to be involved in the shrimp aquaculture development. At the same time, the Republic of the Union of Myanmar formed a State Level Committee to promote a drastic development of shrimp aquaculture industry by formulating first three-year plan from 2000 to 2003 and second plan from 2003 to 2005. Since 2000, a number of semi-intensive and intensive shrimp farming emerged. Up to 2002, there was founded success and failure in semi-intensive and intensive shrimp culture. In the year 2002, a pilot demonstration on Mangrove Friendly Shrimp Culture was conducted as a measure of verification of semi-intensive shrimp culture technique through collaboration of Myanmar DoF and SEAFDEC-AQD.

As of 2023-2024 Myanmar have four types of shrimp farming: Intensive shrimp ponds 1827.49 acre, Semi-intensive shrimp ponds 896.57 acres, extensive or

traditional shrimp ponds 135049.73 acres totaling 137773.79 acres. The total production of fresh water prawn and marine shrimp in 2023-2024 were 76180.00 MT. Recently, the Department of Fisheries encouraged to the development of fish and shrimp culture in every states and regions for self-sufficient of local consumption and increasing for export market.

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Status of Shrimp Hatcheries

In the year 2000, total numbers of shrimp hatcheries amounted to 13 only and in 2003 altogether 26 shrimp hatcheries (include in Backyard Hatcheries) were fully operating with capacity of 190 million shrimp post-larvae. Hatchery system is mainly based on clear water system. The breeders are available from Bay of Bengal and Andaman Sea. It is well famous that the brood stocks from Andaman Sea are supreme in terms of quality and size. However, recent years, many hatcheries including private and public are facing the difficulties of the availability of the sufficient amount of shrimp brood stocks from the wild when required. Therefore, local shrimp hatcheries could not produce sufficient amount of shrimp seeds for local demand and shrimp post larva had to import from Thailand. In 2023-2024, the total imported numbers of giant freshwater prawn and *Penaeus vannamei* were 122.93 million and the total amount of USD 0.612 million were imported from Thailand. Thus, brood-stock management for shrimp hatcheries is needed.

White shrimp culture

Penaeus vannamei has the many advantageous factors for culture but it may also cause the negative impact to other shrimp aquaculture industry. DOF has been aware that *P. vannamei* may carry and outbreak the Taura Syndrome Virus (TSV). After a regional workshop in 2005 at Manila, that assessed the culture of *P. vannamei* ASEAN countries agreed to culture at reasonable documentation. At

present 4 private farms are culturing of commercial scale of *P. vannamei.* Only PCR negative the Pacific white shrimp SPF *P. vannamei* seeds has been permitted to import for culture in domestic water. In 2023-2024, the total numbers of 1827.44 acre of shrimp culture produced 6476 MT in Tanintharyi Region. The total numbers of 615.67 acre of shrimp culture produced 640.67 MT in Ayeyarwaddy Region.

Marine Finfish Culture

In terms of marine fin-fish farming, sea-bass, red snapper and grouper are the most common and commercial species in Myanmar. Stock fish or the fish seed are usually collected from the wild. But the hatchery seed production technology of seabass has been succeeding since 2004 in both DoF and private sectors. First the broodstocks were collected from the wild and later induced breeding that seabass are used as broodstocks. However the grow-out culture of seabass is done by only a few farmers. It is due to the fact that adequate supply of seabass seeds, trash fish and formulated feed is inconsistent.

Oyster and clam culture

The Department of Fisheries (DoF) cooperated with Myeik University are conducting the marine fish, oyster and clam culture farming supported by fisheries research fund of Tanintharyi Region.

Others Mariculture

Others aquatic species such as oyster, clam, seaweed culture are initial stage in Myanmar. The farming of *Eucheuma* Seaweed has been started since 2003 through the collaboration of DoF, a Korean private company. The Korean company brought in the seaweed of *Eucheuma cottonii* and domesticated as the seed stock for other private farmers. Upon the whole, DoF Myanmar is carefully assessing in the promotion of proper new stock strains to produce better quality seed. Recently, Make Smart Company has already constructed a processing plant and storage building. The new endeavor will create employment opportunity for local people and also technology transfer to the local entrepreneurs and communities. The production of dried seaweed is 41.733 MT in 2023-2024.

Mud crab seed production

Mud crab fattening has become the booming industry as domestic consumption and export demand are growing rapidly. Soft shelled mud crab farming has become very popular as it commands high price. At the same time, supply of crab juveniles from nature is decreasing due to over exploitation, habitat deterioration caused by man impact and world climate change. Adequate supply of mud crab seed for soft shell mud crab farming has become urgent need and included in the future plan. DoF has initiated the mud crab hatchery since 2009. However hatchery operation

performs very low survival rate. There needs to do more research and extension work for dissemination of mud crab culture techniques to local small scale farmers and conservation of mud crab resources as setting up the protected area of no crab fishing zone or conservation of mud crab habitats such as mangrove.

Ornamental fish

The ornamental fish industry is one of the sectors to generate income through export. The production of ornamental fish was 729979 pieces and US$ 0.102 million in 2023-2024.

Aquaculture for rural development

Promote aquaculture as an integrated rural development activity within multiple use of land and water resources available through inter-agency coordination in policy formulation, project planning and implementation, stakeholder consultation, extension services and technology transfer. One of the national policy is the poverty alleviation and to carry out rural development through agriculture and other sectors.

To improve the technology knowledge of aquaculture, the basic aquaculture and fish breeding trainings are providing annually to improve the livelihood of rural people and earn the regular income. Moreover, aiming to create job opportunities, increase fish production and cost effective fish production, DoF is conducting the demonstrated cage culture system at water sources such as natural water bodies, reservoir, stream and lakes.

Fisheries sector of evergreen village development project supported 30 million kyats as revolving fund for each villages of 394 villages where have potential to develop in fisheries sector in 15 Regions and States in this fiscal year from the funding sources of government's capital budget. DoF will try the best to achieve the objective of the development of fisheries sector for rural people.

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Application of Good Aquaculture Practices (GAqP)

The GAqP are a series of considerations, procedures, and protocols designed to foster efficient and responsible aquaculture production and expansion, and to ensure final product quality, safety, social aspects and environmental sustainability. GAqP is regarded by the FAO as a necessary tool in the overall development of a sustainable aquaculture sector. For Myanmar the introduction of GAqP will lead to a paradigm change from traditional to modern sustainable production. The DoF is therefore striving to introduce GAqP for the whole aquaculture sector in Myanmar, especially in following up previous work which had concentrated on the food safety component of GAqP.

The DoF established as National Task Force for implementation of GAqP application in Myanmar and considered to follow up and practices on ASEAN's Standard on GAqP for shrimp farming in compliance with the current status of shrimp farming practice in Myanmar. Myanmar learns and tries to follow the Strategies Plan on the Development and Implementation of ASEAN GAqP for food fish. Support to GAqP, DoF established the Directives and Regulation for prohibiting the use of chemical in aquaculture. The DoF has issued GAqP certificates on 3560.21 acre for 13 farmers and also gave the awareness and training of GAqP,107 times to 2846 numbers of stakeholders in 2023-2024.



A GAqP Model Farm demonstration has been set up at the hatcheries owned by DoF in every regions and states. The purpose is specified for the farmer to come and observe the aquaculture practice system and then follow it to increase the fish farming with GAqP System.

The National GAqP Standard is a fundamental tool in the intensification of a sustainable aquaculture sector and the National Standards for Good Aquaculture Practices (Final Draft) has already finished the stage of National Standard Committee of Livestock and Fishery product. The DoF is striving to be approved of the National GAqP standard.

22 AQUACULTURE DIVISION

Aquaculture support services

In 2023-2024, the coordinating plan of Aquaculture Division, Regional and State of DOF and the fish hatcheries stations supported to fish farmers for providing breeders and technical advices to small-scale farmers for poverty reduction and rural development at the township level. Under supervision of aquaculture division, aquatic animal health and disease control section and Freshwater fish research section formed groups of Mobile Team giving on-site support services for fish farmers who want to check their ponds water/soil parameters and health condition of their cultured fish for preventing the fish disease and farm management. In addition, Aquatic animal health and disease control section also provides PCR check on shrimp diseases of shrimp seeds for shrimp farmers. In 2023-2024, Freshwater fish research section gave services of water quality analysis on 257 cases and soil analyses on 13 cases. Aquatic animal health and disease control section provided support services of on-site field analyses on 29 cases, lab disease analysis on 546 cases, PCR check for disease on 1568 cases, Health Certificate issued on 94 cases and provided the lecture for 22 times.

Implemented activities of Aquaculture Division

Aquaculture in fisheries sector is important for food security and nutrition. Aquaculture is also supporting in rural economy and income generation of foreign exchange through socio-economic development at the national and local level.

The DoF has been implemented two inches in size of fish seed releasing plan for sustainable the fisheries resources by fish seed releasing in rivers, streams and lakes which was guided and encouraged by the Government. The plan aims to increase the fish stock, to replenish of fisheries resources, to improve the survival rate of released fish seed and to ensure the sustainability of fisheries resources in natural water. In 2023-2024, DoF has already replenished totally 551.11 million in two inches size of fish seeds in natural water. The main fish species stocked into rivers, streams and lakes are *Labeo rohita*, *Common carp* and *Tarpian*. The government is releasing millions of fish seed into natural water by a cost of million kyats, which is beneficial for the local people who are catching, selling and consuming those fish. As technology transferred on fish farming and breeding techniques to rural people and fish farmers, the basic aquaculture and practically fish breeding trainings are

being conducted annually to improve technical knowledge on fish breeding and farm techniques. In 2023-2024, there were conducted 122 times of the basic aquaculture and fish breeding trainings and totally 3362 trainees were participated. The DoF provides the employment opportunity for the rural people, especially who are low income and landless, to create the job opportunities by conducting the small-scale cage culture system. That aims to increase family income and engage in nutrition through individual's and commercial's activities.

Way forwards

To be sustainable development of Myanmar's Aquaculture Sector, it is cooperating and implementing the guideline of international and regional organizations such as FAO, WOAH, SEAFDEC and NACA. We will emphasize on production of good quality fish seed, importing, research and experimental for potential indigenous fish species and fish culture technology to adapt the climate change, prevention and control the fish disease outbreak, encouraging on fish culture by applying quality fish meal, promoting the implementation of Good Aquaculture Practices (GAqP). Then we will take the chemical residue management for aquaculture products due to National Residue Monitoring Plan (NRMP).

RESEARCH AND DEVELOPMENT DIVISION

Quality Control and Research Section

Department of Fisheries has been implementing to promote exported fish and fishery products according to Vision, Policy and Work Plans of the Department of Fisheries. Under the Research and Development Division, Department of Fisheries has already organized Quality Control and Research Section with two Units including Inspection and Certification Unit and Analytical Laboratory Unit.

Inspection and Certification Unit

Department of Fisheries responsible Government Organization to seafood safety activities for consumers' health and to ensure the quality and safety of export and import of fish and fishery products. According to the responsibility for the consumers' health and safety, Inspection and Certification Unit has been implementing the Monitoring, Control and Surveillance (MCS) activities to ensure the quality and safety of fish and fishery products. Inspection and Certification Unit has been enforcing to fish industries to comply with international standard requirements including importing countries' requirement. At the present Inspection and Certification Unit has been formed inspection teams to auditing with exerting in seafood safety activities and already organized Border Inspection Team for border trade concerns with fishery products.

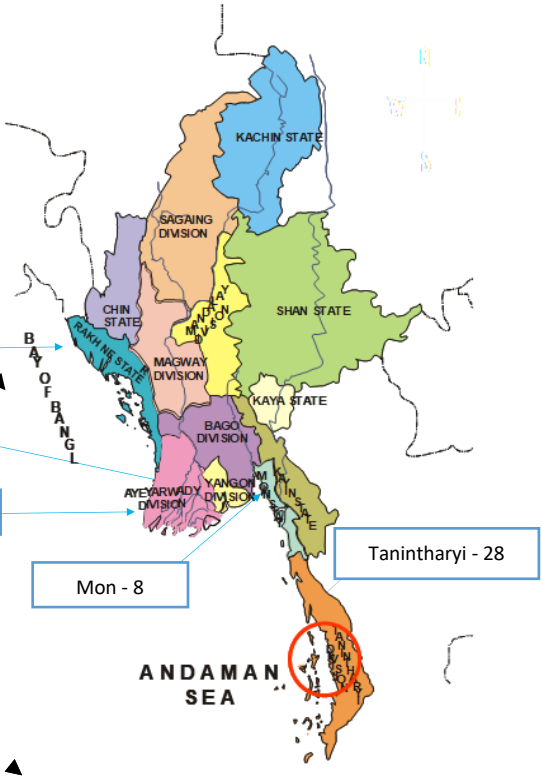
Food safety management system such as GMP/HACCP are implemented in fishery activities through the supply chain like that fishing vessels, landing sites, auction markets, aqua farms, ice plants using in fish industries, feed plants and processing establishments enforcing by Inspection and Certification Unit, under the Research and Development Division. Inspection and Certification Unit has monitored and controlled the processing establishments according to ASEAN Regional Guidelines such as ASEAN Common Food Control Requirements, ASEAN Common Principles and Guidelines for Food Control Systems, ASEAN Common Principles and Requirements for Food Labelling, ASEAN General Principles of Food Hygiene and FAO Codex Guidelines and compliance with Sanitary and Phyto-sanitary Agreement of the World Trade Organization.

Otherwise, according to ASEAN Economic Blue Print, Inspection and Certification Unit has been implementing food safety issues related priority integrated sectors

to harmony in trading between ASEAN countries, Inspection and Certification Unit has been implementing the minimum requirement for seafood trade in ASEAN particularly the farming system requirements, product standards, laboratory accreditation and health certificate requirements.

Inspection and Certification Unit has carried out to improve quality wholesomeness and safety of fishery products for human consumption and minimized post-harvest loss to develop and apply quality and safety management systems that ensure food safety through the implementation, validation and verification of Hazard Analysis Critical Control Points (HACCP) based system, to improve inspection practices and harmonies with international inspection systems adopt quality and safety management systems as appropriate to the fishery industries to develop and implement GMP guidelines and compliance standards.

In other ways, Inspection and Certification unit, Research and Development Division under the Department of Fisheries has issued the factory registration license for (142) processing establishments in 2023-2024 fiscal year intend to monitor and control for the procedure of processing establishments as the requirements of international standard for food safety and quality assurance. Besides, Inspection and Certification Unit has already formed five inspection teams with (6) officers and (20) staffs and regularly examined the implementation of food safety management system such as GMP, SSOP and HACCP due to official control manual.



Inspection and Certification Unit usually contacts with Competent Authorities from importing countries such as Directorate- General for Health and Food Safety of European union, Bureau of Import and Export Food Safety and Department of Animal and Plant Quarantine of the General Administration of Customs of the People's Republic of China, National Agro-Forestry-Fisheries Quality Assurance Department of Vietnam, Saudi Arabia Food and Drugs Authority, Taiwan Food and Drug Administration to promote the increased amount of exported fishery products due to international market requirements.

Currently, (33) establishments have been approved from European Union exported fishery products to EU member countries. (46) establishments have been approved by National Agro- Forestry- Fisheries Quality Assurance Department of Vietnam, exported fish meal from (6) fish meal plants have approved by Administration of Quality Supervision Inspection and Quarantine of China (76) establishments including dried product warehouses and chilled product sites and (4) aquaculture farms have been registered by Bureau of Import and Export Food Safety live aquatic animal packing center(22) have been registered by Bureau of Import and Export Food Safety and Department of Animal and Plant Quarantine of the General Administration of Customs of the People's Republic of China,(25) establishments have been approved by Saudi Arabia Food and Drugs Authority. (11) live aquatic packing centers have been continuing to obtain premising to export to China and (15) processing establishments to obtain permission to exported fishery products to Saudi Arabia continuously.

Department of Fisheries has coordinated with the General Administration of Customs of the People's Republic of China to increase the export amount of fishery products to China, and was able to sign a Protocol on September 15, 2023 for the export of wild caught fishery products and the export of farmed aquatic products.

Myanmar has been exporting only frozen wild caught fishery products, Inspection and Certification Unit has been performing National Residue Monitoring Plan since 2014-2015 to export aquaculture products to EU member countries assistant by

EU-GIZ. National Residue Monitoring Plan are prepared and guided by international expert from EU Commission. National residue monitoring plan and progress report for have submitted to DG SANTE on the last date of March annually.

In the current period, seven freshwater aquaculture fishes like that Rohu, Mrigal, Katla, Pangash, Carfu, Puti, Tilapia, two seawater farm shrimp like that Tiger shrimp, Vannamei shrimp and Soft Shell Crabs have been export approved to export EU markets. Both Good Aquaculture Practices and Good Aquaculture Practices- Compliance and Traceability Training Course have been conducted in these NRMP implemented aquaculture farms by the assistance of EU also.

Department of Fisheries has issued the "Technical Regulation for Export Import Fishery Products" based on WTO-SPS agreement assistance by FAO due to Directive-2/2015. After that Department of Fisheries has renewed this Technical Regulation to in line with international requirements supported by EU-GIZ and issued by Directive-8/2018 for fishery establishments to operate in food safety activities through the supply chain like fishing vessels, landing sites, auction markets, aquaculture farms, feed plants, ice making plants for fishery products and processing establishments according to the international market requirements especially ASEAN, EU, China, Saudi Arabia and importing countries' requirements .

An ASEAN Rapid Alert System on food and feed (RASFF) is ongoing network for notification of direct or indirect risks to human health deriving from food or feed between competent authorities. DOF has participated in pilot Rapid Alert System for food and feed since 2007 and contact with regional activities. Inspection and Certification Unit has conducted the training for ASEAN Rapid Alert System for Food and Feed by the supporting of Experts from Thailand. Inspection and Certification Unit has conducted to attending the National Contact Point Meeting and Steering Committee Meeting on ASEAN Rapid Alert System.

Mekong-Lancang Special Fund Project (Phased- I) was implemented from 2019 to 2021 for the development of the Quality Assurance System of small and medium - sized traditional fishery production enterprises in Myanmar. According to the project, water purifiers and hand washing facilities have been installed, food safety education posters and pamphlets have been distributed to follow in the work areas and the requirements in the work places have been clarified and discussed in project periods.

Then, Mekong- Lancang Special Fund Project (Phase-II) has been implementing from November 2022 to October 2024 in Bago Region, Mandalay Region and Rakhine State. According to the project able to be openning introductory training courses on food safety, conducting onsite job training courses, discussing and varification of operational conditions to correct the areas that need to be corrective action in the food safety management systems, sampling and testing of products and commercial water, conducting consultations on food safety issues and providing business support materials.

Activities of Analytical Laboratory Unit

Maintaining ISO/IEC 17025:2017 Accreditation for the Analytical Laboratory Unit

The Analytical Laboratory Unit of the Research and Development Division of the Department of Fisheries (Yangon, Myanmar), with Accreditation No. 1225/55, completed a reassessment of its accreditation (code HP 255/54) in accordance with ISO/IEC 17025: 2017. This reassessment was conducted by the assessor team from the Bureau of Laboratory Quality Standards (BLQS), Department of Medical Sciences (DMSc), on October 25-26, 2023. The on-site surveillance assessment covered:

- **Microbiological Tests**: Aerobic Plate Count (APC), Coliforms, *Escherichia coli* (*E. coli*), *Salmonella*, *Staphylococcus aureus*, *Vibrio cholerae*, and *Listeria monocytogenes*
- **Chemical Tests**: Nitrofuran (AOZ, AHD, SEM & AMOZ), Chloramphenicol, Tetracycline, and Heavy Metals Test (Cadmium, Lead, and Mercury) . The laboratory is now preparing for the next on-site surveillance assessment scheduled for 2024. The accreditation certificate, which confirms the laboratory's technical competence in public health laboratory testing, is valid from April 21, 2023, to April 20, 2027.

Additionally, the Nitrofuran lab successfully introduced a new parameter, the Nifusol Test for shrimp, at Thailand Central Lab. The ELISA lab also passed the Chloramphenicol Test in eggs, which is a new matrix for the ASEAN Food Reference Laboratory's Veterinary Drug Residue PT Program.

Calibration Certificate for Measuring Equipment and Devices

The 2023–2024 calibration program, conducted by the ISO/IEC 17025: 2017 accredited Central Laboratory (CLT) from Thailand, was completed on July 21, 2023, with maintenance and calibration of all 77 items of equipment and instruments. Additionally, the laboratory has calibrated 81 items of equipment and instruments during 31 August 2024.

Preventive Maintenance

The Analytical Laboratory has contracted annual Regular Preventive Maintenance (RPM) for the 2023–2024 program with the Department of Fisheries (DoF), Sciex (Thailand) Co., Ltd., and Smartx Analytics Engineering Co., Ltd. from Myanmar for LC-MS/MS. Additionally, preventive maintenance for 39 non-calibrated items, including microbiological lab equipment and remaining chemical lab equipment such as HPLC and Micro Strip Reader, was completed by Smartx Analytics Engineering Co., Ltd. from Myanmar in July 2023.

Training Programme of Laboratory

- Training on Estimation of Measurement Uncertainty by Nanova Co., Ltd, Park Royal Hotel, Myanmar (15-5-2023)
- Training program for quality control and traceability implementation on fish and fishery products for Myanmar by TICA and DoF, Thailand (21-8-2023 to 24-8-2023)
- ISO/IEC 17025: 2017 Awareness Training by Department of Research and Innovation, Yangon, Myanmar (13-9-2023 to 14-9-2023)

National Residues Monitoring Program (NRMP)

Analytical Laboratory has still implemented the National Residues Monitoring Program (NRMP) and had already done for Progress Report (2023 - 2024) on March 2024 and Annual Plan (2023 -2024) submitted to EU, DG-SANTE. In addition, the Analytical Laboratory send to Central Laboratory (Thailand, Songkhla Branch) for other chemical testing.

According to the National Residues Monitoring Program (NRMP), a total of 143 samples were taken for testing to facilitate the export of fish and fishery products from aquaculture farms to the EU. The samples were collected on the following dates: 33 samples on September 27, 2023; 47 samples on January 8, 2024; 42 samples on January 30, 2024; and 21 samples on March 6, 2024. All samples were sent to the Central Lab (Thailand) for testing.

In the Analytical Laboratory, laboratory testing fees collected during 2023-2024 totaled 473,684,300 Kyats across 17 categories. The total number of samples tested was 9,445 in the Microbiological Lab and 4,522 in the Chemical Lab.

Species of Whales, Dolphins and Porpoises Found in Myanmar Water, and Conservation

Ayeyarwady dolphin (Irrawaddy dolphin) is the marine mammal/aquatic mammal. Marine mammals are found in marine ecosystem, most or all marine mammals live in or very near the ocean. The Irrawaddy dolphin (*Orcaella brevirostris*), a euryhaline species of oceanic dolphin is found in coastal areas in South and South-east Asia, and in three rivers: Ayeyarwady River (Myanmar), Mekong River (Cambodia) and Mahakam River (Indonesia).

In Myanmar, Ayeyarwady dolphin inhabit upper reaches of Ayeyarwady River system, and is found that it's patchily distribution throughout the shallow coastal water as well. The color of Ayeyarwady dolphin is grey to bluish grey in back and sides, with a beakless melon head, and has a small triangular dorsal fin on its' mid-back. Their body length can reach up to 2.75 meter in adult. After having found dolphins in Ayeyarwady River as new species of 19th century naturalist John Anderson, the common name of new species was given to Irrawaddy dolphin, and scientific name to *Orcaella brevirostris* in the record. .

Department of Fisheries, in collaboration with Wildlife Conservation Society-WCS, has conducted on research, survey, conservation to Ayeyarwady dolphin in Ayeyarwady River since 2002. In conducting surveys on annual Ayeyarwady dolphin census, 79 individual Ayeyarwady dolphins were sighted between Mandalay and Bhamo river-segment in 2020. With the aim of protecting the Ayeyarwady dolphin, Department of Fisheries has already defined the 2 of Protected Areas in Ayeyarwady River. The Protected Areas were the first in 2005, a stretch of 72 Km where was between Nan-taw-Kyun in Mandalay Region and Kyauk-myaung in Sagaing Region, and the second in 2018, a stretch of 118.5 Km where was between Htee-gyint Township, Katha District, Sagaing Region and Shwegu Township, Bhamo District, Kachin State. The joint team of Department of Fisheries, Wildlife Conservation Society-WCS and related departments and organizations carried out data collection, public awareness and law enforcement for Ayeyarwady dolphin and fisheries resources conservation by the monthly patrol trips in the Irrawaddy Dolphin Protected Areas. There is a unique traditional fishing custom in the 1st Ayeyarwady dolphin Protected Area, which is called cooperative fishing practice between cast-net fishermen and Ayeyarwady dolphin, that has existed since ancient time. Nowadays, this fishing practice became an attraction in tourism sector. To strengthen conservation efforts for the Ayeyarwady dolphin and create alternative livelihood for local

community, Community Based Ecotourism was implemented in collaboration with relevant Departments. As the Irrawaddy dolphin Population in coastal area and river mouth, 19 individual Irrawaddy dolphins around water of Main-ma-hla Island, a part of the Ayeyarwady delta region in 2018 survey, 59 Irrawaddy between Myeik and Kaw-thaung, a part of the Taninthari coast in 2011 survey, and 65 Irrawaddy dolphins Rathedaung to Sittwe - Pauktaw -Myebon, a part of Rakhine coast in 2010 survey were sighted respectively. According to survey report of the organizations, and stranded information, it is known that there are Irrawaddy dolphin inhabiting in the rest of the coastal areas like Kyauk-phyu in Rakhine coast and Gulf of Mottama in Mon State.

Whales, dolphins and porpoises are found as a group in marine mammals, collectively known as cetacean, meaning large sea animal or sea monster. According to the list of IUCN-SSC Cetacean Specialist Group issued in 2022, there are a total of 93 cetacean species and an additional 41 subspecies or subpopulation in the world.

According to the survey data, species list stranded in the coast, and description with the distribution map of cetacean on the world, it is estimated that distribution of 24 species or more of whales, dolphins and porpoise can be found in the Myanmar's marine water. In addition, *Dugong dugon*, Sirenian that is another group in marine mammals is found in the Myanmar's coastal water. For the purpose of protection to 12 marine mammal species which are listed in appendix- I and II of Convention on International Trade in Endangered Species of Wild Fauna and Flora-CITES, Department of Fisheries has issued Directive Letters No. 1/2018 and No. 5/2022. In the current period, Township and District Fisheries Departments in Regions and States have been carrying out public awareness activities on endangered aquatic animal conservation.

Marine Mammal Species list protected in the Directive letters No.1/2018 and No.5/2022 of Department of Fisheries

1.Ayeyarwady Dolphin *Orcaella brevirostris*

2. Indo-pacific Hump-backed Dolphin *Sousa chinensis*

3. Finless Porpoise *Neophocaena phocaenoides*

4. Dugong *Dugong dugon*

5. Blue Whale *Balaenoptera musculus*

6. Sperm Whale *Physeter macrocephalus*

Marine Mammal Species list protected in the Directive letters No.1/2018 and No.5/2022 of Department of Fisheries

7. Fin Whale *Balaenoptera physalus*

8. Bryde's Whale *Balaenoptera edeni*

9. Longman's Beaked whale *Mesoplodon pacificus*

10. Pantropical Spotted Dolphin *Stenella attenuata*

11. Long-snouted Spinner Dolphin *Stenella longrostris*

12. Bottlenose Dolphin *Tursiops truncatus*

Large Scale Clam Farming

Clams are a type of shellfish that are commonly found in coastal areas. They can be harvested from the wild or farmed in aquaculture operations. Wild-caught clams are often used for bait, while those from aquaculture are typically consumed as food. Clam farming is a relatively new practice, with the first large-scale commercial operations being established in the early 21st century. Molluscs are estimated to contribute about two thirds of the total global aquaculture production.

Most countries in Southeast Asia share rich endowments of similar mollusc species and possess suitable environmental conditions for their culture. However, the status of development and the economic importance of the shellfish industry may differ in the respective countries. Although the farming technology of most molluscs in the region depends on conventional methods of collecting spat from the wild to be transplanted to the grow-out sites, the culture practices have been gradually and systematically improved over time by coastal fisherfolks with the aim of increasing production through sustainable management practices.

Both the spat and adult cockles inhabit the coastal mud flats, which are often classified as sandy-loam, and their distribution is intertidal or marginally sub-tidal (Broom, 1985) where water depth does not exceed 3 m, beyond which the pole dredge cannot be used to harvest cockles (Kamal, 1996). They require high salinity regimes and thus are found at highest densities in mudflats away from the estuaries.

Clam farming in Myanmar

Myanmar has a long coastline and has several islands and archipelagos- most notably the Mergui Archipelago with huge areas of mudflats. Along the coast, coastal region of Tenintharyi is very well-known as the center of coastal fishing in Southern Myanmar including bivalve fishing. Shwesin May (2022) recorded that a total of 28 species of bivalves belonging to 26 genera and 13 families are distributed along the coastline. Among those bivalve species, hard clam *Meretrix casta var. ovum* (Hanley, 1845), soft clam *Paphia undulata* (Born, 1778), green mussel *Perna viridis* (Linnaeus, 1758), edible oyster *Crassostrea belcheri* (Sowerby, 1871), blood cockles *Tegillarca granosa* (Linnaeus, 1758), and pen shell *Atrina pectinata* (Linnaeus, 1767) was become commercially important in the markets. Of these, green mussel *Perna viridis*, blood cockles *Tegillarca granosa* and edible oyster

Crassostrea belcheri were cultured in experimental scale along the coast. Blood cockles *Tegillarca granosa* were cultured within the mudflat area.

Moreover, the most culture of blood clam *Tegillarca granosa* are also very popular and commercially important for the Myeik waters especially in Myeik Archipelago.

Figure: Blood cockles, Tegillarca granosa from cultured site in Myeik coastal area

The blood cockle, *Tegillarca granosa*, formerly known as *Anadara granosais* is an important aquaculture species in Southeast Asia and become a major role on economic importance in Myanmar since 2015 especially in Myeik coastal area. Myanmar used to have a coastline which was suitable for breeding cockles, particularly, some islands in Myeik Archipelago and mainland coastline in Myeik was enriched with a large number of cockles spat naturally developed from mudflats. There are only two main peaks for spawning season of blood cockle which are in September and November.

Increasing farming on growth out culture of blood cockles, production of cockles spat in farming and marketing unfortunately started to decline in 2022 and expected to be stopped production within a few years. With the decreased of cockle production, cockles are no longer considered as a cheap seafood resources but a delicacy marketed to the locals and tourists. There are several factors leading to the mortality of seed and adult cockles such as environmental issue, smuggling and overharvesting and low food availability in culture areas. The over-

view of the cockle status in Myanmar and experiment on the growth rate in culture, the challenges and the potential of aquaculture of cockles will be presented in this paper. Experimental growth-out culture were investigated in the natural mudflat of Panataung coastal area to know the effects of environmental parameters such as pH, salinity, temperature, dissolved oxygen, turbidity, phosphorus, nitrite, nitrate, ammonia and chlorophyll-a on the growth and survival rate of blood cockles.

The growth out culture of blood cockles, ***Tegillarca granosa***, is become developed in southern Myanmar very recently and also economically important as it is exported to the other countries. However, the spat was collected from the wild, spat production sites. However, the production of cockles spat are start declining in 2022 and it is urgently need to do researches on the sustainable conservation of blood cockles in the wild and also to produce the spat from the hatcheries. There is no hatchery for the clam spat production in Myanmar yet, except for the pearl oyster hatchery. An attempt has been made for the experiment on the growth-out culture of blood cockle in the natural mudflat of Panataung coastal area, near Myeik. Tanintharyi region. However, mollusc production has been observed to fluctuate dramatically in recent years due mainly to the inconsistent seed supply from the wild, which varies geographically and annually. These variations are often associated with pollution and also the uncontrolled harvesting of adults irrespective of their sizes, which reduces chances of spawning among adults.

Production of blood cockles, *Tegillarca granosa*

Figure: Blood cockles, Tegillarca granosa from 12-month cultured site in Myeik coastal water

Challenges

There are several factors leading to the mortality of seed and adult cockles such as environmental issue, smuggling and overharvesting and low food availability in culture areas. These days, production of blood cockle in Southeast Asia is seriously decreasing because of environmental deterioration in the coastal areas where their habitats are. Therefore, appropriate management of the fishing and aquaculture grounds as well as technical measures to recover the bivalve resources are required. For that purpose, easy and economical monitoring techniques are needed to evaluate long- and short-term changes in the bivalve's living environment.

Clam farmers can also control the quality of their product, as well as the size and age of the clams being harvested. There are a number of challenges associated with clam farming, however. The main challenge is ensuring that the clams have a sufficient food supply. This can be difficult to achieve in man-made environments, and often requires the use of supplemental feed. Clam farmers also need to be aware of the potential for disease outbreaks, which can cause significant losses in stock.

Blood cockle in Myanmar is now facing a lot of challenges that had led to huge drop in production of spat and adult cockles. Uncontrolled human activities problem and habitat degradation of cultural areas. Possible ways to overcome this problem is played a significant role towards this by improving aquaculture techniques and through awareness programmers towards our communities. Therefore, the production of adult cockle and spat can be improved from years to years to fulfill the demand for human consumption.

Another challenge is some of the farm areas are important for the migratory birds. Habitat loss for many of the shore and coastal animals have been happened related with the large development of clam farming in the Tanintharyi region.

Production of clam

According to local farmers, there are 5 natural production sites in Tanintharyi. Yaykantaung is famous production of spat and most of local farmers collect in this area. Annual production is shown in table. Currently, there are 254 local farmers. Regional government direct manage the clam culture and give temporary licenses in around in Myeik region as the clam farming is not under the Aquaculture Law. Because the clam farming is settled at the lower intertidal zone of coastline where the substrate not stable. The licenses are valid only for 1 year for every farmer. Each farmer can apply for 30 acres per year for blood cockles farming.

Table: Annual landings (mt) of *Anadara granosa* for countries in Southeast Asia (FAO,1999)

Countries	1995	1996	1997
Thailand	14,403	15,836	15,420
Malaysia	100,276	71,795	58,400

Table: Data of production of *Anadara granosa* in Myanmar (DoF, Myanmar) Myeik, Kyun Su, and Palaw township

Year	No. of farmers	Farms (Acres)	Export (mt)	US$
2019-20	119	3510.54	541.81	1.35
2020-21	171	4638.04	882.06	2.21
2021-22	212	6142.07	708.90	1.05
2022-23	223	6263.80	577.56	2.733
2023-24	254	6747.16	893.950	1.341

Conducting Fisheries and Aquaculture Research Activities by Fisheries Research Fund oF Tanintharyi Regional Fisheries Federation

"Fisheries Research Fund Agreement" between the Department of Fisheries and the Tanintharyi Regional Fisheries Federation signed on MoU in February 14th, 2022, and according to the treaty agreement, between 0.3 % and 0.5 % from the export value of the fishery and aquatic products from Tanintharyi Regional Fisheries Exporters will be donate as a research fund from August 1st , 2022.

According to the agreement on the 1st Research Fund Management Committee meeting in December 8th , 2022, the following research activities were started;

- Hard Clam (*Tegillarca grabosa*) stock Assessment and exploring sustainable Hard Clam aquaculture production from Department of Fisheries.
- Upgrading the Ka Lwin Fishery Station as Good Aquaculture practices (GAqP) Model Farm from Department of Fisheries.
- Experimental Research on Seabass Fish seed (*Lates calcarifer*) using different feed from Department of Livestock and Aquatic Research.
- Experimental research on the Grouper Fish to develop gonad using different feed and medicines from Department of Livestock and Aquatic Research.
- Experimental research on Red Snapper Fish to develop gonad using different feed and medicines from Department of Livestock and Aquatic Research.
- Upgrading the Kyunsu Research Center from Department of Livestock and Aquatic Research.
- Experimental research on the production of Oysters and Snails, systematic research of Breeding and Growth out culture in Myeik, Tanintharyi Region from Department of Marine Science, University of Myeik.

Research and Training

Department of Fisheries (DoF) is responsible for the development of fisheries sector of the Union of Myanmar and the responsibilities of DoF for development and management in fisheries are as follow:

- Conservation and rehabilitation of fisheries resources
- Promotion of fisheries research and surveys
- Collection and compilation of fisheries statistic and information
- Extension services
- Supervision services
- Sustainability of fishery resources

In order to implement above responsibilities, DoF has established six fisheries training centers namely.

- Fisheries Institute (Twantay, Yangon Region)
- Fisheries Training Center (Gyogone, Yangon Region)
- Fisheries Training Center (Sagaing, Sagaing Region)
- Fisheries Training Center (Pyapon , Ayeyarwady Region)
- Fisheries Training Center (Thahton, Mon State) and
- Fisheries Training Center (Bago, Bago Region)

Human resource development in fishery sector and capacity building are carried out through the fisheries training centers. In 2022-2023 twenty-four training courses have been successfully conducted associated the fields of Aquaculture, Training on Internship for Day Employees, Training on Capacity Building for Fishery Staff, Training on Capacity Building for Fishery Officer, Training on Basic Aquaculture and Induce Breeding, Training on Good Aquaculture Practices (GAqP), Training on Diploma in Fisheries and Aquaculture, ToT Online Training for Fish Taxonomy Using FishBase Software, ToT Training for Fish Biology, Awareness Training on Food Safety Management System (Basic Course), Training on Basic On-Job Skill for Fishermen, Training on Fish Processing and Quality Control for Fishery Products, Training Course on Fish Taxonomy, Training on Basic Fishing Gears and Fishing Methods, Education Lecture in the Legal Positions Related to the Elimination of Child Labour in Myanmar, Training on Basic English Speaking, Training on Basic Computer, Training Course on Fishery Law, Training on Water Quality Management and Fish Disease Control Management, Training on Fishery

Resources Conservation, Training on Fisheries Resources Conservation by Fisheries Laws, Training Mya Saing Young Project of Fishery Sector, Training on Capacity Building for Fisheries Products, Training on Awareness Lecture of Fishermen, has been conducted with 457 trainings and 11964 trainees in total.

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Water Quality Management and Fish Disease Control Management, Training on Fishery Resources Conservation, Training on Fisheries Resources Conservation by Fisheries Laws, Training Mya Saing Young Project of Fishery Sector, Training on Capacity Building for Fisheries Products, Training on Awareness Lecture of Fishermen, has been conducted with 363 trainings and 10492 trainees in total.

Training Conducted in 2022-2023 Fiscal Year

No.	Training Course Title	No. of Course	No. of Trainees	Remarks
1	Training on Internship for Day Employees	17	198	- Fisheries Training Center (Gyogone, Bago) -Regions and States
2	Training on Capacity Building for Fishery Staff	2	41	Fisheries Training Center (Sagaing, Pyapon, Thahton, Bago) - Regions and States
3	Training on Capacity Building for Fishery Officer	1	24	- NPT Central Office
4	Training on Basic Aquaculture and Induces Breeding	125	2932	-Institute of Fisheries Technology (Twantay) - Fisheries Training Center (Pyapon,Thahton, Bago) - Regions and States
5	Training on Good Aquaculture Practices (GAqP)	147	3623	-Institute of Fisheries Technology (Twantay) -Fisheries Training Center (Sagaing, Pyapon, Thahton, Bago) - Regions and States
6	Training on Diploma in Fisheries and Aquaculture	1	40	- Fisheries Institute (Twantay)
7	TOT Online Training for Fish Taxonomy Using Fish Base Software	1	2	-Fisheries Training Center (Gyogone)
8	TOT Training For Fish Biology	1	1	-Fisheries Training Center (Gyogone)
9	Awareness Training on Food Safety Management System (Basic Course)	3	152	-Fisheries Training Center (Gyogone, Bago)
10	Training on Basic On-Job Skill for Fishermen	35	1237	-Fisheries Training Center (Gyogone, Pyapon) - Regions and States
11	Training on Fish Processing and Quality Control for Fishery Products	4	104	-Fisheries Training Center (Gyogone, Sagaing, Bago)
12	Training Course on Fish Taxonomy	1	20	-Fisheries Training Center (Gyogone)

No.	Training Course	No of Course	No of Training	Remarks
13	Training on Basic Fishing Gears and Fishing Methods	1	24	-Fisheries Training Center (Gyogone)
14	Education Lecture in the Legal Positions Related to the Elimination of Child Labour in Myanmar	1	14	-Fisheries Training Center (Sagaing)
15	Training on Basic English	1	20	-Fisheries Training Center (Sagaing)
16	Basic Computer Training	1	20	-Fisheries Training Center (Sagaing)
17	Training Course on Fishery Law	1	20	-Fisheries Training Center (Sagaing)
18	Training on Water Quality Management and Fish Disease Control Management	1	20	-Fisheries Training Center (Sagaing)
19	Training on Fisheries Resources Conservation	3	60	-Fisheries Training Center (Pyapon, Bago) - Tanintharyi Region
20	Training on Fisheries Conservation by Fisheries Laws	1	35	-Fisheries Training Center (Pyapon)
21	Training on Mya Saing Young Project of Fishery Sector	1	51	-Fisheries Training Center (Pyapon)
22	Training on Capacity Building for Fisheries Products	1	35	-Fisheries Training Center (Pyapon)
23	Training on Awareness Lecture of Fishermen	50	1555	- Tanintharyi Region
24	Education Lecture of Fishermen for Resources Conservation	57	1736	-Sagaing Region, Tanintharyi Region - Kayar State
	Total	**457**	**11964**	

Training Conducted in 2023-2024 Fiscal Year

No.	Training Course Title	No. of Course	No. of Trainees	Remarks
1.	Training on Capacity Building for Fishery Officer	2	56	-NPT Central Office
2	Training on Basic On-Job Skill for Fishermen	34	1047	- Region(Yangon, Ayeyarwaddy, Tanintharyi, - State(Mon, Rakhine) - Fisheries Training Center (Gyogon, Bago)
3	Training for Fish Taxonomy Using Fish Base Software	2	77	-Fisheries Training Center (Gyogon,Bago)
4	Training on Fish Processing and Quality Control for Fishery Products	6	156	- Region (Sagaing) - Fisheries Training Center(Gyogon, Sagaing, Bago)
5	Training on Basic Fishing Gears and Fishing Methods	1	38	-Fisheries Training Center(Gyogon)
6	Training on Basic English	3	283	- NPT Central Office - Fisheries Training Center (Gyogon, Sagaing)
7	Training on Basic Computer	3	59	- Region (Mandalay) - Fisheries Training Center (Gyogon, Sagaing)
8	Training on Capacity Building for Fishery Staff	8	164	- Region (Mandalay, sagaing, Tanintharyi - State(Mon, Shan) - Fisheries Training Center(Sagaing, Pyapon, Bago)

Training Conducted in 2023-2024 Fiscal Year

No.	Training Course Title	No. of Course	No. of Trainees	Remarks
9	Training on Good Aquaculture Practices (GAqP)	107	2846	- Region (NPT Council, Yangon, Tanintharyi, Ayeyarwaddy, Bago, Sagaing, Magway, Mandalay) - State (Kachin, Kayar, Kayin, Chin, Rakhine Shan) - Fisheries Training Cente (Sagaing,Pyapon, Thahton, Bago)
10	Training on Basic Aquaculture and Induces Breeding	123	3392	- Region (NPT Council, Yangon, Tanintharyi, Ayeyarwaddy, Bago, Sagaing, Magway) - State (Kachin, Kayar, Kayin, Chin, Rakhine, Shan) - Fisheries Training Center(Sagaing, Pyapon, Thahton, Bago)
11	Training on Mya Saing Young Project of Fishery Sector	1	33	- Fisheries Training Center(Bago)
12	Training on Awareness Lecture of Fishermen	21	552	- Region (Tanintharyi)
13	Training on Education Lector of Fisheries Sector	1	20	- Region (Sagaing)
14	Education Lecture of Fishermen for Resources Conservation	36	1218	- Region (Sagaing , Tanintharyi, Ayeyarwaddy) - Fisheries Training Center (Sagaing, Pyapon)

Training Conducted in 2023-2024 Fiscal Year

No.	Training Course Title	No. of Course	No. of Trainees	Remarks
15	Awareness Training on Food Safety Management System (Basic and Advance Course),	3	180	- Region (Bago) - Fisheries Training Center (Bago)
16	Training Course on Regulatory Food Safety Auditor	1	27	-Fisheries Training Center (Gyogon)
17	Training on Fisheries Resources Conservation by Fisheries Laws	2	51	- Region (Bago) - State (Kachin)
18	Training on Education Talk on of weather of the weather	1	25	- Stae (Kayar)
19	Discussion of Knowledge of the System that must be followed by food Products	1	39	- Stae (Kachin)
20	Education Lecture of Fisher-men for Turtle Conservation	4	110	- Region(Tanintharyi)
21	ToT Training for Farm Management Technology and Hatchery Management Technology	1	3	- Fisheries Training Center (Gyogon)
22	Training on Diploma in Fisheries and Aquaculture (First / Second Years)	2	116	- Fisheries Institute (Twantay)
	Total	**363**	**10492**	

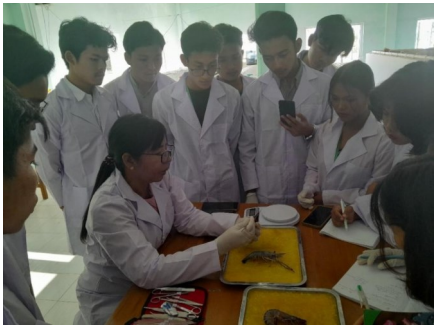
50 RESEARCH AND DEVELOPMENT DIVISION

In Order to develop Fisheries Training Center and Fisheries Extension Officer, Development & Training Session is laid down the plan to conduct the following work plans during the fiscal year (2024-2025):

- Training on Internship for Day Employees
- Training on Capacity Building for Fishery Staff
- Training on Capacity Building for Fishery Officer
- Training on Basic Aquaculture and Induce Breeding
- Training on Good Aquaculture Practices (GAqP)
- Training on Diploma in Fisheries Aquaculture
- Training on Basic On-Job Skill for Fishermen
- Training on Fish Processing and Quality Control for Fishery Products
- Training Course on Fish Taxonomy
- Training on Basic Fishing Gears and Fishing Methods
- Training on Basic English
- Training on Basic Computer
- Training on Fishery Resources Conservation
- Training on Mya Saing Young Project of Fishery Sector
- Training on Awareness Lecturing for Fishermen

Fisheries Institute (Twantay)

The Fisheries Institute (Twantay) is situated on Twantay - Maubin Highway, Twantay District, between Zee Phyu Gone Village and Mya Goe Village, located on the side of Zee Phyu Gone Creek, (26.956 km) from Yangon.Fisheries Institute (Twantay) was opened on (12-12-2022) by Ministry of Agriculture, Livestock and Irrigation with the intention of upgrading one of Myanmar's fisheries college. The duration of the Diploma course of is (3) years and after successful completion of the course, a Diploma in Fisheries and Aquaculture will be awarded. As it is the vocational training, the curriculums consists of more weighted on practical with the respective ratio of theory and practical are 60%: 40% in the first year, 50% : 50% in the second year, and 30% : 70% in the third year. In addition, there will be going on field trips related to the subject. Number of students who enrolled in the 2023-2024 Academic year , a total of 66 students are attending the first year course and a total of 40 students are attending the second year course.



Fisheries Institute (Twan Tay)
Diploma in Fisheries and Aquaculture
Diploma course subject and Cirrculum Authors

No.	Subject	Curriculum Authors
1	Myanmar	University of Veterinary Science
2	English	Agricultural Institute
3	Fish Taxonomy	U Win Ko Ko (Deputy Director) Dr.Yin Yin Than (Fishery Officer) Dr.Thet Yu Yu Swe (Fishery Officer)
4	Nutrition, Feed and Feeding	Dr. Aung Naing Oo (Director) U Kyaw Moe Aung (Deputy Director) Dr. War War Phoo (Fishery Officer)
5	Reproductive Biology	Dr. Myo Min Hlaing (Deputy Director) Dr.Nilar Shein (Deputy Director)
6	Limnology	Dr.Kyaw Kyaw (Director) Daw Aye Aye Myint (Assistant Director) Daw San San Soe (Fishery Officer)
7	Fish Biology	Dr. Myo Min Hlaing (Deputy Director) Dr.Nilar Shein (Deputy Director) Dr.Than Than Lwin (Deputy Director)
8	Hatchery Management and Technology	Dr. Myo Min Hlaing (Deputy Director) Daw Mya Mya Sint (Deputy Director) U Ye Tun Naing (Deputy Director) U Zaw Thein Tun (Assistant Director) Daw Aye Aye Myint (Assistant Director)

No.	Subject	Curriculum Authors
9	Farm Management and Technology	Dr. Myo Min Hlaing (Deputy Director) Daw Mya Mya Sint (Deputy Director) U Ye Tun Naing (Deputy Director)
10	Aquaculture Engineering	Dr.Kyaw Kyaw (Director) U Nyi Nyi Tun (Deputy Fishery Officer)
11	Fish Physiology	Dr.Kyaw Kyaw (Director) Daw Myat Khine Mar (Deputy Director) Daw Ohnmar Aung (Assistant Director)
12	Molecular Biology	Daw Myat Khine Mar (Deputy Director) Daw Ohnmar Aung (Assistant Director) Daw Yi Yi Cho (Fishery Officer)
13	Aquaculture Economic and Financing	Dr.Tun Thein (Director) Daw Nway Nway Myint Thein (Assistant Director) Daw Cho Mar Oo (Deputy Officer)
14	Food Safety and Management	Dr.Su Myo Thwe (Director) Dr.Nant Kay Thwe Moe (Assistant Director) Daw Nay Chi Cho Lin (Fishery Officer)
15	Planning, Project Formulation and Management	Dr.Kyaw Kyaw (Director) U Ye Kyaw (Fishery Officer)
16	Fish Ecology	Dr.Tun Thein (Director) U Zaw Tun Aung (Fishery Officer) U Min Khing (Assistant Fishery Officer) Daw Soe Myat Thu (Assistant Fishery Officer)
17	Fish Pathology	Daw May Thandar Wint (Director) Daw YI Yi Cho (Fishery Officer)

Ph.D Candidates of DOF at abroad

Qualified staffs of DOF have been studying in abroad for their capacity and after that whose will be performed in relative program.

No.	Name/Position	University	Duration	Graduation	Study Field
1.	U Akar Myo	Shanghai Ocean University China	1-9-2020 to 31-7-2024 (Online) (In person on 19-7-2023)	Ph. D (Fisheries Science)	Ph.D of Rice-Fish Ecology, Fisheries Science
2.	U Ye Pyae Naing	Sunchon National University, South Korea	20-8-2020 To 28-8-2024	Ph. D (Fisheries Science)	M.Sc of Fisheries Science
3.	U Wana Zaw	(Japan)	13.4.2022 to 30.9.2024	M.Sc (Marine Science & Technology)	Marine Science & Technology
4.	U Chit Aung Thu	Silpakorn University, Thailand (**Online**)	9-1-2023 To 31-12-2024	M.Sc (Fisheries Science)	M.Sc of Fisheries Science

Regarding the invitation of Regional, International and Partner Countries, DOF officers had participated in meetings, training, workshop, seminars and scholarship in other countries and the participated list is as follows:

No.	Groups	Training		Workshop/ Seminar/ Meeting	
		Frequency	Person	Frequency	Person
1.	SEAFDEC	13	31	18	30
2.	World Trade Organization-WTO			1	3
3.	The Government of India	1	4		
4.	Cambodia's Mekong -Lancang Project Fund			1	2
5.	Network of Aquacutlure Centers in Asia Pacific -NACA			1	1

Projects cooperation with Development Partners

1. Collaborative Program to Support the Conservation of Marine and Fresh-water Biodiversity in Myanmar (Technical Assistant) support by Fauna & Flora International (FFI) from 2019-2024 in Tanintharyi Region, Ayeyarwady Region, Rakhine State and Kachin State.

2. Improvement of Quality Assurance System for Small and Medium- Sized Traditional Fishery Products Processing (SME-Phase II) (USD 0.75) support by Mekong-Lanchan Cooperation Program Special Fund from 2023-2024 in Bago Region, Mandalay Region and Rakhine State.

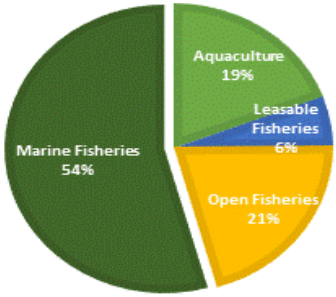
FISHERY STATISTICS

Table.1. FISHERY PRODUCTION

Thousand Metric Ton

No.	Year	Total	Aquaculture	Leasable Fisheries	Open Fisheries	Marine Fisheries
1.	2015-2016	5,591.83	1,014.42	338.69	1,241.98	2,996.74
2.	2016-2017	5,675.47	1,048.69	339.23	1,251.13	3,036.42
3.	2017-2018	5,877.46	1,130.35	341.02	1,253.95	3,152.14
4.	2018(April to Sep)	2,581.45	495.49	122.74	513.42	1,449.80
5.	2018-2019	5,971.10	1,121.35	339.36	1,260.69	3,249.70
6.	2019-2020	6,017.92	1,145.02	342.94	1,265.12	3,264.84
7.	2020-2021	6,074.82	1,167.35	343.99	1,268.41	3,295.07
8.	2021 Oct to 2022 March	3,652.61	713.33	238.02	814.08	1,887.18
9.	2022-2023	6,248.42	1,202.08	351.29	1,297.26	3,397.79
10.	2023-2024	6,320.07	1,211.02	354.27	1,340.39	3,414.39

2022-2023



2023-2024

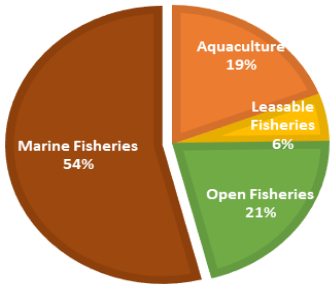


Fig 1: Fishery Production (2022-2023 & 2023-2024)

57 AQUACULTURE PONDS

Table.2. TOTAL AQUACULTURE PONDS AND PRODUCTION

No.	Year	Area of Aquaculture Ponds (Acre)	Production of Aquaculture Ponds (Thousand Metric Ton)
1.	2015-2016	478,002	1,014.42
2.	2016-2017	487,525	1,048.69
3.	2017-2018	491,345	1,130.35
4.	2018(April to Sep)	492,206	495.49
5.	2018-2019	492,295	1,121.35
6.	2019-2020	498,710	1,142.02
7.	2020-2021	498,936	1,167.35
8.	2021 Oct to 2022 March	500,857	713.33
9.	2022-2023	511,449	1,202.08
10.	2023-2024	469,790	1,211.01

Table. 3.TOTAL AREA OF AQUACULTURE PONDS

Unit - Acre

No.	Year	Area			
		Fish Pond	Shrimp Pond	Crab Pond	Total
1.	2015-2016	239,671	238,331	1,741	479743
2.	2016-2017	245,807	241,718	1,857	489382
3.	2017-2018	247,007	244,338	2,047	493392
4.	2018(April to Sep)	247,818	244,388	2,047	494253
5.	2018-2019	247,858	244,437	2,057	494352
6.	2019-2020	252,220	244,292	2,198.	498710
7.	2020-2021	252,415	244,286	2,234	498936
8.	2021 Oct to 2022 March	253,532	245,085	2,240	500857
9.	2022-2023	263,300	245,594	2,555	511449
10.	2023-2024 *	329,525	137,774	2,491	469790

* In the year 2023-2024, the decline in shrimp farming ponds is due to the current situation, the inability to collect the data of all fish and shrimp farming ponds.

59 AQUACULTURE PONDS

Table.4.AQUACULTURE FISH POND BY STATES AND REGIONS

Unit-Acre

No.	States/ Regions	2015-2016	2016-2017	2017-2018	2018(April to Sep)	2018-2019
1.	Kachin	2,312	2,312	2,344	2,346	2,355
2.	Kayah	819	893	893	893	894
3.	Kayin	675	711	731	731	741
4.	Chin	296	296	296	304	344
5.	Sagaing	7,128	7,580	7,580	7,575	7,544
6.	Tanintharyi	1,120	1,120	1,120	1,120	1,120
7.	Bago	28,324	31,121	31,146	31,151	31,132
8.	Magway	425	425	425	424	424
9.	Mandalay	7,970	7,902	7,873	7,860	7,848
10.	Mon	995	995	1,001	1001	1,001
11.	Rakhine	20	20	20	20	20
12.	Yangon	66,015	67,038	66,444	67,284	67,328
13.	Shan	3,408	3,408	3,408	3,383	3,383
14.	Ayeyarwady	119,993	121,811	123,551	123,551	123,551
15.	Nay Pyi Taw	171	175	175	175	173
	Total	**239,671**	**245,807**	**247,007**	**247,818**	**247,858**

Table.4. AQUACULTURE FISH POND BY STATES AND REGIONS Cont'd

Unit-Acre

No.	States/ Regions	2019-2020	2020-2021	2021Oct to 2022 March	2022-2023	2023-2024
1.	Kachin	2,352	2,236	2,236	2,240	1,394
2.	Kayah	949	951	951	951	1,013
3.	Kayin	790	765	751	801	987
4.	Chin	344	349	349	349	166
5.	Sagaing	7,538	7,597	7,598	7,843	7,819
6.	Tanintharyi	1,120	1,120	1,120	1,120	124
7.	Bago	31,116	31,116	31,198	31,353	29,253
8.	Magway	425	425	425	427	342
9.	Mandalay	7,852	7,852	7,852	7,852	9,877
10.	Mon	1,001	1,006	1,006	1,007	1,585
11.	Rakhine	248	421	421	584	652
12.	Yangon	68,286	68,413	69,461	71,681	97,881
13.	Shan	3,383	3,385	3,385	3,385	1,816
14.	Ayeyarwady	126,643	126,643	126,643	133,470	176,125
15.	Nay Pyi Taw	173	136	136	237	491
	Total	**252,220**	**252,415**	**253,531**	**263,300**	**329,525**

61 AQUACULTURE PONDS

Table.5.AQUACULTURE SHRIMP / PRAWN POND BY STATES AND REGIONS

Unit-Acre

No.	States/ Regions	2015-2016	2016-2017	2017-2018	2018 (April to Sep)	2018-2019
1.	Kachin	-	-	-	-	-
2.	Kayah	-	-	-		
3.	Kayin	130	130	130	130	130
4.	Chin	-	-			
5.	Sagaing	-	-			
6.	Tanintharyi	4,138	4,138	4,138	4,138	4,138
7.	Bago	40	40	40	40	40
8.	Magway	-	-			
9.	Mandalay	-	-			
10.	Mon	1,125	1,125	1,125	1,125	1,124
11.	Rakhine	156,488	156,489	156,488	156,488	156,488
12.	Yangon	18,442	18,916	18,681	18,731	18,781
13.	Shan	-	-			
14.	Ayeyarwady	57,968	60,880	63,736	63,736	63,736
15.	Nay Pyi Taw	-	-	-		
	Total	**238,331**	**241,718**	**244,338**	**244,388**	**244,437**

Table.5.AQUACULTURE SHRIMP / PRAWN POND BY STATES AND REGIONS Cont'd

Unit-Acre

No.	States/ Regions	2019-2020	2020-2021	2021Oct to 2022 March	2022-2023	2023-2024
1.	Kachin					
2.	Kayah					
3.	Kayin	130	130	130	80	80
4.	Chin					
5.	Sagaing					
6.	Tanintharyi	4,623	4,623	5,422	5,422	1,827
7.	Bago	40	40	-	-	-
8.	Magway					
9.	Mandalay					
10.	Mon	1,124	1,118	1,129	1,129	-
11.	Rakhine	156,489	156,489	156,489	156,489	97,800
12.	Yangon	18,150	18,150	18,180	18,739	19,123
13.	Shan					
14.	Ayeyarwady	63,736	63,736	63,735	6,373	18,944
15.	Nay Pyi Taw					
	Total	**244,292**	**244,286**	**245,085**	**245,594**	**137,774**

Table.6.AQUACULTURE CRAB POND BY STATES AND REGIONS

Unit-Acre

No.	States/ Regions	2015-2016	2016-2017	2017-2018	2018 (April to Sep)	2018-2019
1.	Tanintharyi	688.03	688.03	688.03	688.03	688.03
2.	Rakhine	30.00	30.00	30.00	30.00	30.00
3	Yangon	807.12	923.02	923.02	923.02	923.02
4.	Ayeyarwady	216.01	216.01	405.93	405.93	405.93
5.	Mon	-	-	-	-	10.50
	Total	**1,741.16**	**1,857.06**	**2,046.98**	**2,046.98**	**2,057.48**

No.	States/ Regions	2019-2020	2020-2021	2021 Oct to 2022 March	2022-2023	2023-2024
1.	Tanintharyi	693.78	693.78	693.78	693.78	511.81
2.	Rakhine	135.61	165.61	167.51	374.48	446.08
3	Yangon	923.02	928.51	928.51	928.51	928.02
4.	Ayeyarwady	435.54	435.54	450.02	558.21	605.66
5.	Mon	10.50	10.50	-	-	-
	Total	**2,198.48**	**2,233.94**	**2,239.82**	**2,554.98**	**2,491.57**

Table. 7. THE PRODUCTION OF LEASABLE FISHERIES AND OPEN FISHERIES

No.	Year	Total number of Leasable (Number)	Production of Leasable Fisheries (Thousand Metric Ton)	Production of Open Fisheries (Thousand Metric Ton)	Total Production of Inland Fisheries (Thousand Metric Ton)
1.	2015-2016	3,312	338.69	1,241.98	1,580.67
2.	2016-2017	3,299	339.23	1,251.13	1,590.36
3.	2017-2018	3,243	341.02	1,253.95	1,594.97
4.	2018 (April to Sep)	3,082	122.74	513.42	636.16
5.	2018-2019	3,076	339.36	1,260.69	1,600.05
6.	2019-2020	3,055	342.94	1,265.12	1,608.06
7.	2020-2021	3,007	342.52	1,268.41	1,610.93
8.	2021Oct to 2022March	699	238.02	814.08	1,052.10
9.	2022-2023	2,703	351.29	1,297.26	1,648.55
10.	2023-2024	2,648	354.27	1,340.39	1,694.66

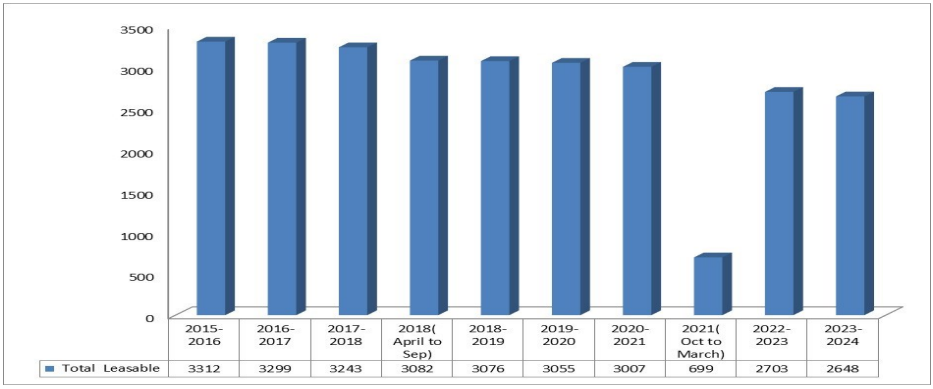


Figure 2: Number of Leasable Fisheries in Myanmar (2015-2016 to 2023-2024)

- **Fishing Vessels**
- **Type of Fishing Gears**

Table.8. FISHING VESSELS

Unit - Number

No.	Year	Small Fishing Boat		Off-shore Vessels		Total
		Powered Boat	Non-Powered Boat	National	Foreign	
1.	2015-2016	13,831	12,583	3,030	11	29,455
2.	2016-2017	16,012	10,704	3,168	48	29,932
3.	2017-2018	15,084	6,802	3,219	5	25,110
4.	2018(April to Sep)	6,292	2,901	2,417	5	11,615
5.	2018-2019	14,077	5,122	3,211	-	22,410
6.	2019-2020	14,854	4,337	3,216	-	22,407
7.	2020-2021	11,239	3,216	3,167	-	17,622
8.	2021(Oct to March)	9,116	2,548	3,116	-	14,780
9.	2022-2023	9,985	3,464	3,079	-	16,528
10.	2023-2024	8,329	3,057	3,040	-	14,426

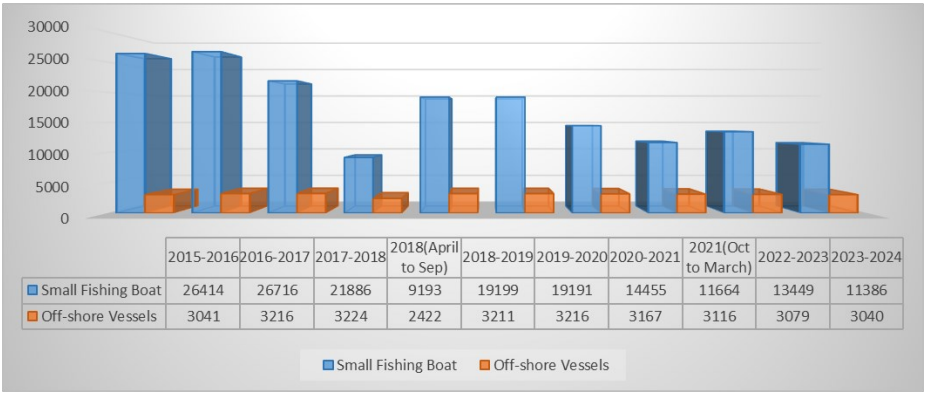


Fig 3: Number of Small Fishing Boats and Off-Shore Vessels

Table.9.TYPE OF FISHING GEAR IN STATES AND REGIONS

Unit:Number

No.	Year	States and Regions	Trawl	Purse Seine	Drift net	Stow net	Long line	Stick-held falling net	Trap	Total
1.	2015-2016	Head office	612	41	10	157	1	-	24	845
		Rakhine	-	2	-	-	-	-	4	6
		Taninthayi	628	241	3	-	33	351	99	1355
		Ayeyarwady	-	-	146	352	-	-	-	498
		Mon	-	-	228	98	-	-	-	326
		Yangon	-	-	-	-	-	-	-	-
	Total		**1240**	**284**	**387**	**607**	**34**	**351**	**127**	**3030**
2.	2016-2017	Head office	706	47	4	150	1	-	20	928
		Rakhine	-	5	-	-	-	-	4	9
		Taninthayi	637	270	4	-	30	395	96	1432
		Ayeyarwady	-	-	141	336	-	-	1	478
		Mon	-	-	232	89	-	-	-	321
		Yangon	-	-	-	-	-	-	-	-
	Total		**1343**	**322**	**381**	**575**	**31**	**395**	**121**	**3168**
3..	2017-2018	Head office	730	68	4	146	1	-	19	968
		Rakhine	-	5	-	-	-	-	4	9
		Taninthayi	671	257	4	-	22	391	90	1435
		Ayeyarwady	-	-	148	337		-	1	486
		Mon	-	-	231	90		-	-	321
		Yangon	-	-				-	-	-
	Total		**1401**	**330**	**387**	**573**	**23**	**391**	**114**	**3219**
4.	2018	Head office	689	30	119		1		18	856
	(April to	Rakhine	-	3	-				3	5
	March)	Taninthayi	669	188	-		15	242	88	1175
		Ayeyarwady	-	-	285				1	285
		Mon	-	-	96				-	96
		Yangon	-	-	-				-	
			1358	**221**	**500**		**16**	**242**	**110**	**2417**
5.	2018-2019	Head office	728	62	3	147	1	-	18	959
		Rakhine	-	3	-	-	-	-	3	6
		Taninthayi	698	275	2	-	19	381	88	1463
		Ayeyarwady	-	-	147	315	-		1	463
		Mon	-	-	214	106	-		-	320
		Yangon	-	-			-		-	-
	Total		**1426**	**340**	**366**	**568**	**20**	**381**	**110**	**3211**

Table.9.TYPE OF FISHING GEAR IN STATES AND REGIONS Cont'd

Unit:Number

No.	Year	States and Regions	Trawl	Purse Seine	Drift net	Stow net	Long line	Stick-held falling net	Trap	Total
6.	2019-2020	Head office	697	62	1	148	2	-	15	925
		Rakhine	-	3	-	-	-	-	3	6
		Taninthayi	743	263	11	-	14	368	85	1484
		Ayeyarwady	-	-	148	332	-	-	1	481
		Mon	-	-	199	121	-	-	-	320
		Yangon	-	-	-	-	-	-	-	
	Total		**1440**	**328**	**359**	**601**	**16**	**368**	**104**	**3216**
7.	2020-2021	Head office	659	78	1	143	2	-	8	901
		Rakhine	-	3	-	-	-	-	3	6
		Taninthayi	777	234	26	-	5	334	81	1457
		Ayeyarwady	-	-	147	336	-	-	-	483
		Mon	-	-	196	124	-	-	-	320
		Yangon		-	-			-	-	-
	Total		**1436**	**315**	**370**	**603**	**7**	**334**	**102**	**3167**
8.	2021 (Oct to March)	Head office	665	71	2	137	1		18	894
		Rakhine							2	2
		Taninthayi	769	226	21		6	328	77	1427
		Ayeyarwady			145	338				483
		Mon			188	122				310
		Yangon	-	-	-	-	-	-		-
	Total		**1434**	**297**	**356**	**597**	**7**	**328**	**97**	**3116**
9.	2022-2023	Head office	637	52	1	149	1	-	21	861
		Rakhine						-	2	2
		Taninthayi	790	235	15		6	305	65	1416
		Ayeyarwady			145	339		-		484
		Mon			192	124		-		316
		Yangon			-			-		-
	Total		**1427**	**287**	**353**	**612**	**7**	**305**	**88**	**3079**
10.	2023-2024	Head office	625	52	2	147	1		22	849
		Rakhine		1					2	3
		Taninthayi	796	239	15		3	295	74	1399
		Ayeyarwady			144	339				483
		Mon			175	108				283
		Yangon			-	-				-
	Total		**1421**	**292**	**336**	**594**	**4**	**295**	**98**	**3040**

- Fishery Export
- Exported Ornamental Fish
- Imported Ornamental Fish
- Imported Aquatic Animal Feed

Table.10.FISHERY EXPORTS

Quantity - Metric Ton
Value - US $ in Million

No.	Year	Fish		Prawns		Others		Total	
		Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value
1.	2015-2016	246,970.93	274.25	13,673.49	49.64	108,326.47	178.74	368,970.89	502.63
2.	2016-2017	290,580.04	319.04	13,082.46	58.21	135,044.01	228.57	438,706.51	605.82
3.	2017-2018	394,135.80	385.81	15,905.44	60.78	158,186.09	265.13	568,227.33	711.72
4.	2018 (April to Sep)	147,802.63	149.12	7,206.920	30.38	66,064.92	114.03	221,074.47	293.53
5.	2018-2019	382,135.95	367.44	13,979.31	59.98	187,561.09	300.84	583,676.35	728.26
6.	2019-2020	427,969.18	453.68	13,965.22	57.40	227,750.89	342.06	669,685.29	853.14
7.	2020-2021	379,993.08	418.20	11,882.66	50.43	166,350.39	317.87	558,226.13	786.50
8.	2021Oct to 2022March	243,529.66	258.40	7,572.99	33.49	84,965.87	188.77	336,068.52	480.66
9.	2022-2023	330,413.77	367.85	16,050.77	56.65	168,376.83	349.73	514,841.37	774.23
10.	2023-2024	344,342.71	388.09	9,978.85	38.18	168,244.25	303.15	522,565.81	729.42

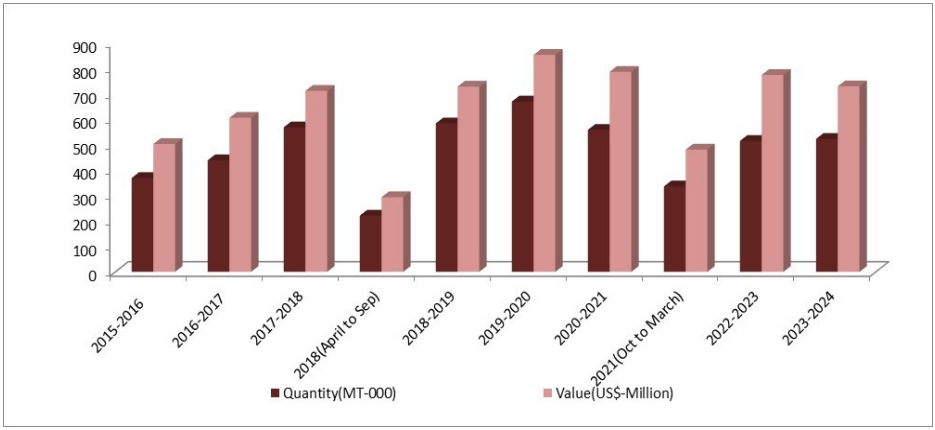


Fig 4: Fish and Fishery Product Exported in Myanmar

Table.11. TOP TEN SPECIES OF EXPORTED FISH AND FISHERIES PRODUCT OF MYANMAR

No.	Species (Common Name)	2021 Oct to 2022 March	
		MT	US$(Million)
1.	Fish Meal	39,313.86	39.532
2.	Rohu	24,732.358	30.250
3.	Live Mud Crab	5,710.683	28.551
4.	Squid	9,792.873	23.177
5.	Hilsa	5,246.914	21.652
6.	Big Eye Croaker	14,804.050	15.920
7.	Soft Shell Crab	1,569.598	15.703
8.	Ribbon Fish	13,632.968	14.701
9.	Platu/Indian Mackerel/ Short Body Mackerel	16,773.968	12.979
10.	Live eel	3,062.213	12.248

No.	Species (Common Name)	2022-2023	
		MT	US$(Million)
1.	Live Mud Crab	14,893.75	65.211
2.	Fish Meal	8,924.60	64.78
3.	Live Eel	13,437.94	48.339
4.	Rohu	35,144.53	43.934
5.	Soft Shell Crab	3,305.788	28.439
6.	Plathukae	35,129.081	27.546
7.	Hilsa	7,995.834	27.546
8.	Ribbon Fish	21,219.117	24.098
9.	Thread Fin Brean	19,600.89	18.064
10.	White	5,819.017	17.322

No.	Species (Common Name)	2023-2024	
		MT	US$(Million)
1.	Fish Meal	82,121.306	78.550
2.	Live Mud Crab	12,794.855	50.621
3.	Rohu	39,037.349	48.292
4.	Live Eel	12,235.305	38.735
5.	Plathukae	41,011.970	33.314
6.	Hilsa	9,058.766	27.473
7.	Soft Shell Crab	3,086.904	23.590
8.	Ribbon Fish	19,343.201	20.433
9.	Thread Fin Bream	19,836.190	19.147
10.	Big Eye Croaker	17,097.828	16.033

Table.12 .TOP TEN COUNTRIES EXPORTED FISHERY PRODUCTS

No.	2021 Oct to 2022 March		
	Countries	MT	US-Million
1.	Thailand	196,791.121	206.374
2.	China	50,967.908	107.154
3.	K.S.A	18,784.852	22.825
4.	Japan	3,811.030	19.044
5.	Singapore	13,344.611	16.450
6.	Malaysia	5,744.828	16.067
7.	Bangladesh	12,437.812	14.901
8.	U.S.A	3,153.842	12.544
9.	U.A.E	7,868.721	9.512
10.	India	1,624.525	8.726
No.	**2022-2023**		
	Countries	**MT**	**US-Million**
1.	Thailand	239,910.308	263.015
2.	China	118,895.294	244.525
3.	Japan	9,801.987	40.646
4.	K.S.A	33,440.718	28.942
5.	Singapore	21,783.831	28.257
6.	Malaysia	10,164.845	22.484
7.	Bangladesh	15,507.760	19.813
8.	U.S.A	5,739.197	18.938
9.	U.A.E	13,754.582	13.938
10.	U.K	6,147.028	13.560
No.	**2023-2024**		
	Countries	**MT**	**US-Million**
1.	Thailand	236,009.593	237.420
2.	China	114,251.740	217.927
3.	K.S.A	39,203.957	39.426
4.	Japan	6,218.136	30.834
5.	Singapore	18,644.836	24.453
6.	U.S.A	7,199.889	20.355
7.	U.A.E	18,113.004	19.165
8.	Malaysia	8,271.559	17.530
9.	Bangladesh	13,277.743	16.362
10.	U.K	8,599.734	15.665

Table.13.FISHERY PRODUCT EXPORTED BY TRADING COUNTRIES (2021 October to 2022 March)

Qty– Metric Ton/Value– US$ in Million

No.	Country	Fish		Prawn		Other		Total	
		MT	US$	MT	US$	MT	US$	MT	US$
1.	Thailand	154,281.133	130.743	1,766.731	7.594	40,743.257	68.037	19,6791.121	206.374
2.	China	17,927.946	24.435	2,515.70	9.981	30,524.262	72.738	50,967.908	107.154
3.	K.S.A	18,310.769	21.482			474.083	1.343	18,784.852	22.825
4.	Japan	444.894	4.473	1,819.556	9.234	1,546.580	5.337	3,811.030	19.044
5.	Singapore	12,292.158	13.261	383.369	1.378	669.084	1.811	13,344.611	16.450
6.	Malaysia	2,186.233	4.411	36.636	0.109	3,521.959	11.547	5,744.828	16.067
7.	Bangladesh	10,243.212	12.605			2,194.600	2.296	12,437.812	14.901
8.	U.S.A	2,263.777	5.009	264.441	1.368	625.624	6.167	3,153.842	12.544
9.	U.A.E	7,822.800	9.153	3.763	0.008	42.158	0.351	7,868.721	9.512
10.	India	1,624.525	8.726					1,624.525	8.726
11.	U.K	2,698.886	5.883	10.910	0.032	217.685	1.616	2,927.481	7.531
12.	Hong Kong	2.168	0.002	473.647	2.782	411.618	3.987	887.433	6.771
13.	Qatar	4,449.118	5.212	4.866	0.013	92.575	0.286	4,546.559	5.511
14.	Korea	174.135	0.333	5.406	0.050	1,068.144	3.136	1,247.685	3.519
15.	Taiwan	3.350	0.009	258.111	0.766	921.320	2.712	1,182.781	3.487
16.	Australia	305.512	0.740			427.453	2.497	732.965	3.237
17.	Italy	1,290.721	2.600	2.502	0.007	19.030	0.053	1,312.253	2.660
18.	Vietnam					1,036.812	2.388	1,036.812	2.388
19.	Kuwait	1,856.013	2.130	0.480	0.002	15.025	0.043	1,871.518	2.175
20.	Oman	1,615.007	1.894	2.994	0.009	44.267	0.178	1,662.268	2.081
21.	France	305.860	0.473	0.156	0.000	129.320	0.796	435.336	1.269

Table.13.FISHERY PRODUCT EXPORTED BY TRADING COUNTRIES (2021 October to 2022 March) Cont'd

Qty– Metric Ton/Value– US$ in Million

No	Country	Fish		Prawn		Other		Total	
		MT	US$	MT	US$	MT	US$	MT	US$
22.	Bahrain	964.847	1.126	1.800	0.003	9.106	0.027	975.753	1.156
23.	Canada	603.839	1.084	0.924	0.006	3.961	0.014	608.724	1.104
24.	Belgium	462.250	0.715	15.740	0.137	11.912	0.147	489.902	0.999
25.	Netherland	304.359	0.462			26.500	0.423	330.859	0.885
26.	Spain					135.240	0.490	135.240	0.490
27.	South	294.468	0.382	5.095	0.012	14.442	0.041	314.005	0.435
28.	Iraq	275.000	0.328					275.000	0.328
29.	Sweden	129.306	0.203					129.306	0.203
30.	Brunei	178.779	0.185			3.500	0.011	182.279	0.196
31.	Ireland	71.185	0.140	0.165	0.001	4.036	0.022	75.386	0.163
32.	Denmark					7.400	0.122	7.400	0.122
33.	Greece	50.610	0.065					50.610	0.065
34.	Jordon	33.566	0.043			6.620	0.021	40.186	0.064
35.	Philippine					7.500	0.062	7.500	0.062
36.	New					6.500	0.056	6.500	0.056
37.	Lebanon	31.900	0.044			3.050	0.009	34.950	0.053
38.	Germany	21.030	0.034					21.030	0.034
39.	Cyprus	10.300	0.018			1.250	0.007	11.550	0.025
	Total	**243,529.656**	**258.403**	**7,572.992**	**33.492**	**84,965.873**	**188.771**	**336,068.521**	**480.666**

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Table.14.FISHERY PRODUCT EXPORTED BY TRADING COUNTRIES (2022-2023)

Qty– Metric Ton/Value– US$ in Million

No.	Country	Fish		Prawn		Other		Total	
		MT	US$	MT	US$	MT	US$	MT	US$
1.	China	20,314.049	32.040	9,075.754	27.074	89,505.491	185.411	118,895.294	244.525
2.	Korea	329.539	0.587	30.371	0.240	1,936.800	5.650	2,296.710	6.477
3.	Hong Kong	24.645	0.024	905.962	4.477	704.940	5.912	1,635.547	10.413
4.	Netherlands	506.555	0.743			83.000	0.633	589.555	1.376
5.	Qatar	3,208.845	3.504	5.736	0.015	41.413	0.102	3,255.994	3.621
6.	Kuwait	3,896.147	4.194	2.947	0.008	28.179	0.095	3,927.273	4.297
7.	Singapore	19,825.331	23.089	693.577	1.888	1,264.923	3.280	21,783.831	28.257
8.	K.S.A	33,099.415	27.920			341.303	1.022	33,440.718	28.942
9.	Malaysia	3,065.739	6.441	101.362	0.287	6,997.744	15.756	10,164.845	22.484
10.	Bahrain	2,026.491	2.058	0.300	0.001	12.506	0.040	2,039.297	2.099
11.	Oman	5,173.223	5.265	9.710	0.026	41.368	0.138	5,224.301	5.429
12.	Italy	2,833.934	4.411	6.944	0.020	75.352	0.273	2,916.230	4.704
13.	U.K	5,818.918	11.544	5.030	0.017	323.080	1.999	6,147.028	13.560
14.	U.A.E	13,669.824	13.412	11.360	0.029	73.398	0.497	13,754.582	13.938
15.	Japan	1,183.685	14.656	3,135.34	14.007	5,482.962	11.983	9,801.987	40.646
16.	U.S.A	4,498.000	7.896	238.765	1.164	1,002.432	9.878	5,739.197	18.938
17.	Vietnam	9.250	0.007	217.620	0.653	3,913.035	4.329	4,139.905	4.989
18.	France	294.687	0.399	0.973	0.002	274.555	1.799	570.215	2.200
19.	India	3,196.480	12.386					3,196.480	12.386
20.	Taiwan	0.040	0.000	464.223	1.524	1,490.772	4.508	1,955.035	6.032
21.	Spain					252.720	1.024	252.720	1.024

Table.14.FISHERY PRODUCT EXPORTED BY TRADING COUNTRIES (2022-2023)Cont'd

Qty– Metric Ton/Value– US$ in Million

No.	Country	Fish		Prawn		Other		Total	
		MT	US$	MT	US$	MT	US$	MT	US$
22.	Belgium	1,213.798	2.004	0.180	0.001	21.233	0.192	1,235.211	2.197
23.	Australia	588.122	1.117	10.700	0.055	772.695	4.482	1,371.517	5.654
24.	South Africa	642.589	0.777	7.418	0.018	11.797	0.028	661.804	0.823
25.	Bangladesh	13,442.16	17.720			2,065.600	2.093	15,507.760	19.813
26.	Brunei	235.418	0.248			1.850	0.007	237.268	0.255
27.	Thailand	187,209.989	169.928	1,120.818	5.111	51,579.501	87.976	239,910.308	263.015
28.	Philippine					30.300	0.238	30.300	0.238
29.	Denmark	74.293	0.134			12.000	0.187	86.293	0.321
30.	Greece	202.830	0.289					202.830	0.289
31.	Canada	670.294	1.157	0.945	0.001	5.010	0.020	676.249	1.178
32.	New Zealand	59.070	0.119	0.336	0.001	14.217	0.084	73.623	0.204
33.	Lebanon	34.819	0.047			1.000	0.004	35.819	0.051
34.	Sweden	204.198	0.284	0.250	0.001			204.448	0.285
35.	Iraq	2,560.735	2.990					2,560.735	2.990
36.	Jordan	66.395	0.073	1.000	0.013			67.395	0.086
37.	Germany	43.520	0.063	2.360	0.012	7.950	0.047	53.830	0.122
38.	Ireland	177.681	0.304	0.787	0.002	1.180	0.006	179.648	0.312
39.	Lao					1.948	0.014	1.948	0.014
40.	Cyprus	13.062	0.019			4.575	0.024	17.637	0.043
	Total	**330,413.770**	**367.849**	**16,050.768**	**56.647**	**168,376.829**	**349.731**	**514,841.367**	**774.227**

Table.15.FISHERY PRODUCT EXPORTED BY TRADING COUNTRIES (2023-2024)

Qty– Metric Ton/Value– US$ in Million

No	Country	Fish		Prawn		Other		Total	
		MT	US$	MT	US$	MT	US$	MT	US$
1.	China	19137.636	30.005	5131.132	16.915	89982.972	171.007	114251.74	217.927
2.	Japan	1035.072	12.308	2266.010	9.746	2917.054	8.780	6218.136	30.834
3.	U.S.A	5965.642	11.036	231.180	1.101	1003.067	8.218	7199.889	20.355
4.	Australia	702.464	0.982	18.030	0.071	628.552	3.797	1349.046	4.850
5.	Malaysia	3234.257	6.150	64.646	0.159	4972.656	11.221	8271.559	17.530
6.	Oman	4697.933	5.125	3.650	0.012	26.068	0.100	4727.651	5.237
7.	Qatar	5373.559	6.249	0.816	0.003	37.824	0.088	5412.199	6.340
8.	Singapore	16965.173	19.476	326.940	1.112	1352.723	3.865	18644.836	24.453
9.	Netherlands	405.400	0.541			83.640	0.636	489.040	1.177
10.	Taiwan	0.001	0.000	382.757	1.325	1095.806	4.464	1478.564	5.789
11.	Vietnam	49.800	0.052	92.880	0.355	9300.963	9.422	9443.643	9.829
12.	Korea	273.198	0.357	29.539	0.109	2328.169	4.057	2630.906	4.523
13.	U.A.E	17980.614	18.552	27.302	0.151	105.088	0.462	18113.004	19.165
14.	K.S.A	38578.641	37.457			625.316	1.969	39203.957	39.426
15.	Kuwait	4774.633	5.244	0.270	0.001	27.120	0.087	4802.023	5.332
16.	Thailand	188604.569	175.25	563.330	3.168	46841.694	59.002	236009.593	237.420
17.	U.K	8285.323	13.927	8.043	0.029	306.368	1.709	8599.734	15.665
18.	Bahrain	2285.745	2.449	0.300	0.001	8.770	0.027	2294.815	2.477
19.	Italy	3325.535	5.150	4.289	0.018	27.654	0.092	3357.478	5.260
20.	Iraq	4491.494	5.218					4491.494	5.218
21.	Hong Kong	24.940	0.020	819.336	3.877	681.353	4.850	1525.629	8.747

Table.15.FISHERY PRODUCT EXPORTED BY TRADING COUNTRIES (2023-2024) Cont'd

Qty– Metric Ton/Value– US$ in Million

No	Country	Fish		Prawn		Other		Total	
		MT	US$	MT	US$	MT	US$	MT	US$
22.	Canada	1024.687	1.613	0.649	0.003	14.490	0.060	1039.826	1.676
23.	Sweden	329.125	0.502	0.999	0.005	0.000	0.000	330.124	0.507
24.	Belgium	1819.552	2.738	1.093	0.005	19.677	0.086	1840.322	2.829
25.	Greece	264.136	0.380			1.475	0.005	265.611	0.385
26.	France	123.272	0.157			192.563	1.226	315.835	1.383
27.	Jordan	114.720	0.197					114.720	0.197
28.	India	5085.454	15.139					5085.454	15.139
29.	South Africa	695.439	0.887	3.151	0.009	10.145	0.033	708.735	0.929
30.	New Zealand	29.267	0.059	1.920	0.007	15.170	0.081	46.357	0.147
31.	Bangladesh	8020.557	9.960			5257.186	6.402	13277.743	16.362
32.	Cyprus	37.410	0.061			5.425	0.019	42.835	0.080
33.	Spain					240.000	1.035	240.000	1.035
34.	Ireland	247.815	0.417	0.577	0.003	2.224	0.009	250.616	0.429
35.	Brunei	156.670	0.172			5.330	0.030	162.000	0.202
36.	Portugal					15.000	0.100	15.000	0.100
37.	Indonesia					100.240	0.129	100.240	0.129
38.	Lebanon	92.488	0.101	0.015	0.000	1.470	0.006	93.973	0.107
39.	Philippines					11.000	0.078	11.000	0.078
40.	Denmark	73.280	0.104					73.280	0.104
41.	Maldives	27.008	0.028					27.008	0.028
42.	Germany	10.199	0.022					10.199	0.022
	Total	**344342.708**	**388.085**	**9978.854**	**38.185**	**168244.252**	**303.152**	**522565.814**	**729.422**

Table :16. Exported Ornamental Fish (2021 October to 2022 March)

No .	Scientific Name	Common Name	Quantity (PCS)	Value (US$)
1	*Danio choprae*	Glow Light Danio	143,860	14,991.0
2	*Danio kyathit*	Orange Fin Danio/ Kyathit Danio Myanmar Leopord Danio	67,420	7,482.0
3	*Danio margaritatius*	Celestial Pearl Danio	52,650	13,162.5
4	*Danio erythromicron*	Emeral Dwart Rasbora	96,740	10,094.0
5	*Puntius sp*	Odessa Barb	49,950	5,563.0
6	*Schistura balteata*	Sumo Loach	39,365	6,228.75
7	*Botia kubotai*	Checker Boaed Botia / Clown Loach/ Polka Dot Loach	23,806	7,649.8
8	*Macrorasbora rubencen*	Red Line Rasbora	9,000	900.0
9	*Yunnanilius brevis*	Short Loach	7,810	911.0
10	*Garra flavatura*	Rainbow Garra	60,625	24,136.25
11	*Macrognathus zebrinus*	Zebra Spine Eel	2,220	1,226
12	*Channa pulcher/Channa sp*	Beautiful Fin Channa/Spotted Channa/	6,796	22,970.4
13	*Danio hysginon*	Scarlet Danio	41,800	6,930.0
14	*Sawbwa resplendens*	Sawbwa Barb	7,725	792.5
15	*Badis ruber*	Badis	2,100	250.0
16	*Microrasbora galaxy*	Microrasbora Galaxy	4,890	629.2
17	*Piano snail*	Piano Snail	700	70.0
18	*Devario auropurpureus*	Fales Barilius	1,300	190.0
19	*Monotreta cutcutin*	Green Puffer Fish	420	84.0
20	*Channa harcourtbuteri*	Inly Snake Head	635	1,065.0
21	*Channa Sp*	Fire & Ice	1,465	15,782.9
22	*Toxotes microlopsis*	Small Scale Archer Fish	665	413.0
23	*Channa mine tic*	Channa Mine Tic	70	7.0
24	*Dario Sp*	Tiger Dario /Dario fish	6,260	2,146.0
25	*Cepaea hortensis*	Grass snail	5,500	650.0
26	*Celestichthys margaritatus*	Galaxy Rasbora	5,680	628.0
27	*Burmese pink loach*	Burmes Pink Loach	750	75.0
28	*Danio albolineatus*	Pearl Danio	4,800	480.0
29	*Tubero schistura arakanesis*	Rasy Loach	2,600	250.0
30	*Devario sondhi*	Devario Sondhi/ HO Pond Devario	2,500	250.0

Table :16. Exported Ornamental Fish (2021 October to 2022 March) Cont'd

No .	Scientific Name	Common Name	Quantity (PCS)	Value (US$)
31	*Botia histrionica*	Golden Botia	600	430.0
32	*Akysis prashadi*	Minicat	4,250	598.75
33	*Tiger badies*	Tiger Badies	1,750	175.0
34	*Toxotes zebinus*	Archer Fish	240	48.0
35	*Tetrandon biocellatus*	Puffer	60	6.0
36	*Danio roseas*	shanensis	400	30.0
37	*Acantopsis choirorhynchos*	Horse Face Loach	50	20.0
	All Total		**657,452**	**147315.05**

Table :17. Exported Ornamental Fish (2022-2023)

No.	Scientific name	Common Name	Quantity	Value(US$)
1	*Danio choprae*	Glow Light Danio	154,660	15,226.0
2	*Puntius padamya/Puntius spp*	Odessa Barb	89,685	9,970.75
3	*Danio erythromicron*	Emeral Dwarf Rasbora	123,765	12,316.5
4	*Danio Kyathit*	Myanmar Leopard Danio/ Orange Fin Danio/Olive Danio	63,125	6,292.5
5	*Garra flavatra/Rainbow garra*	Rainbow Garra	62,870	21,163.6
6	*Danio hysginon*	Danio hysginon/ Scarlet Danio	55,400	5,960.0
7	*Danio margaritatius/*	Celestial Pearl Danio	55,320	13,488.0
8	*Schistura balteata*	Sumo loach	35,160	5,203.0
9	*Yunanius bervis*	Polka loach/ Short Loach	26,220	2,622.0
10	*Danio soundhsi*	Danio soundhsi	3,780	406.8
11	*Sawbwa respiendens*	Sawbwa barb	16,250	1,640.0
12	*Danio alblineatus*	Pearl danio/ Danio albolineatus	13,020	1,302.0
13	*Cepaea hortensis*	Grass Snail	12,850	1,285.0
14	*Channa pulcher*	Beautiful Fin Channa/ Channa pulcher	9,033	14,146.6
15	*Piano snail*	Piano Snail	7,150	805.0
16	*Danio spp*	Tiger danio/ Tiger barb	4,640	464.0
17	*Devario sonodhii*	Goldline Danio/ Deverio sonodhii	1,800	180.0
18	*Tiger badis*	Tiger badis	6,830	760.0
19	*Microrasbora rubencese*	Red Line Rasbora	5,300	530.0
20	*Celestichthys margaritatus*	Galxy rasbora/ Rasbora galaxy	5,020	880.0
21	*Macrognathus zebrinus*	Zebra spiny eel/ Zebra danio	4,990	1,140.0
22	*Microrasbora galaxy*	Microrasbora Galaxy	3,750	487.5

Table :17. Exported Ornamental Fish (2022-2023) Cont'd

No.	Scientific name	Common Name	Quantity	Value(US$)
23	*Badis badis*	Dwarf Chamakon Fish	2,690	269.0
24	*Akysis/Akysis prashadi*	Akysis/ Minicat	250	37.5
25	*Channa spp/Channa fire &ice*	Fire & Ice, Spotted Channa	2,726	12,555.1
26	*Tuberoschistura arakanensis*	Rosy Loach	2,000	200.0
27	*Burmese pink loach*	Burmese pink loach	1,720	182.0
28	*Indostomus paradoxces*	Toothpick Fish	1,690	169.0
29	*Chnna harcourtbutleri*	Inle snakehead	1,680	1,302.0
30	*Acanthocobitis spp*	Loach	1,600	160.0
31	*Botia kubotai*	Polkadot Loach	1,440	414.0
32	*Danio tinwinii*	Danio hysginon/ Scarlet Danio/ Danio Tinwinii	1,320	132.0
33	*Erethistes hara*	Minicat/River CatFish	3,630	363.0
34	*Intecypris auropurpureous*	False Barilus	1,200	150.0
35	*Budis ruber*	Budis Ruber	1,000	100.0
36	*Danio feegradei*	Yoma Danio	600	60.0
37	plerophyllum scatare	*Bulgrical angela*	960	269.0
38	*Devario browni*	Lemon Danio	600	60.0
39	*Puntius ticto*	Tico Barb	500	50.0
40	*Toxotes microlepis*	Small Scale Archer Fish	460	244.0
41	*Couis microlepis*	Siamese Tiger Fish	350	52.5
42	*Barilius baken*	Hill Trout	300	30.0
43	*Toxotes zebrinus*	Archer Fish	140	28.0
44	*Golden archer fish*	Archer	100	30.0
	Total	**Total**	**787,814**	**133,150.35**

Table :18. Exported Ornamental Fish (2023-2024)

No.	Scientific name	Common Name	Quantity	Value (US$)
1.	*Microrasbora erythromicro*	Emeral dwarf Rasbora	95,120	8,771
2.	*Puntius sp/ Puntius padamya*	Odessa barb	86,160	9,312
3.	*Danio choprae*	Glowlight Danio	151,460	14,467
4.	*Panio snail*	Panio snail	13,660	1,180
5.	*Dario spp*	Tiger Badis / Tiger Dario	18,510	1,516
6.	*Channa Sp*	Fire & Ice Spotted Ice	3,102	4,914
7.	*Channa Spp*	Channa Red Fin	1,080	108
8.	*Channa ornatipinnis*	Channa Ornatipinnis	922	250
9.	*Garra flavatura*	Rainbow Garra	40,060	11,495
10.	*Garra spilota*	Spotted Garra	16,200	2,429
11.	*Yunnanilius brevis*	Burmese Pink Loach/ Short Loach	19,675	2,045
12.	*Puntius di di*	Barb	10,900	1,090
13.	*Dario hysginon*	Scarlet Derio	32,700	3,270
14.	*Danio margaritatus*	Celestrial Pearl Danio	23,400	5,670
15.	*Microrasbora rubesens*	Red Line Rosbora	1,800	180
16.	*Celesticbthys margaritastus*	Galaxy rasbona	9,465	1,211
17.	*Channa pulcher*	Beautiful Fin Channa	4,110	5,119
18.	*Sawba resplendens*	Swabwa barb	2,400	212
19.	*Devario Sondhi*	Gold Line Danio	8,705	889
20.	*Channa harcourbutleris*	Inle Snake Head	3,020	4,791
21.	*Danio kyathit*	Orange Fin Danio/Myanmar Leopard	40,450	4,045
22.	*Mollienisia Spp*	Molly Fish	41,000	4,100
23.	*Schistura balteata*	Sumo Loach	16,500	2,423
24.	*Botia historionica*	Golden botia	47,100	4,710
25.	*Botia kubotia*	Polka Dot Loach	25,840	5,980
26.	*Tuberoschistura arakanesis*	Rosy Loach	10,500	1,020
27.	*Macrognathus zebrinus*	Zebra Spiny Eel	1,190	298
28.	*Channa fire*	Channa Fire	510	280
29.	*Black Tiger badis*	Black Tiger badis	900	60
30.	*Burmese pink loach*	Burmese Pink Loach	900	60
31.	*Sportted danio*	Spotted Danio	900	60
32.	*Badis ruber*	Badis Ruber	750	60
33.	*Channa ignis*	Channa Ignis	60	60
34.	*Dario Wnwinni*	Gold Line Dario	380	60
35.	*Channa burmanica*	Channa burmanica	50	60
36.	*Toothpick fish*	Indostomus pasadoxus	500	50
	Total		**729,979**	**102,243**

Table :19. Imported Ornamental Fish (2022-2023)

No.	Scientific Name	Common Name	Quantity (PCS)	Value (US$)
1.	*Paracheirodon innesi*	Neon Tetra	100	10.0
2.	*Cichlasoma synspilum*	Blood Parrot Cichlid	100	80.0
3.	*Carassius auratus*	Goldfish	100	50.0
4.	*Cyprinus carpio*	Japanese Koi Carp	2,377	4,754.0
5.	*Acanthurus glaucopareius*	Powder Black	12	48.0
6.	*Acanthurus japonicus*	Powder Brown tang	18	270.0
7.	*Acanthurus leucosternon*	Powder Blue	39	273.5
8.	*Centropyge bicolor*	Bicolor Angelfish	27	42.0
9.	*Nemateleotris magnifica*	Fire Fish Goby	15	37.5
10.	*Pseudocheilinus hexataenia*	Six Line Wrasse	15	10.50
	Total		**2803**	**5575.50**

Table :20. Imported Ornamental Fish (2023-2024)

No.	Scientific Name	Common Name	Quantity (PCS)	Value (US$)
1.	*Carassius auratus*	Goldfish	300	150.00
2.	*Balantiocheilos melanopterus*	Silver Shark	100	10.00
3.	*Paracheirodon innesi*	Neon Tetra	200	20.00
4.	*Amphilophus citrinellus ×Vieja melanura*	Blood Parrot	150	120.00
5.	*Cyprinus carpio*	Koi Carp	1,147	2,294.00
6.	*Acanthurus olivaceous*	Yellow Shoulder Tang / Adult	24	69.30
7.	*Amblyeleotris guttata*	Orange Spoted Shrimp Goby	3	2.10
8.	*Synchiropus stellatus*	Red Scooter Mandarin	21	73.50
9.	*Centropyge aurantius*	Golden Angelfish	6	264.00
10.	*Euxiphipops navarchus*	Majestic Angelfish (15cm-24cm)	8	152.00
11.	*Nemateleotris decora*	Purple Flame Goby	24	91.20
12.	*Hemitaurichthys polylepis*	Diamond Butterfly fish	2	15.00
13.	*Zebrasoma veliferum*	Sailfin Tang	4	13.52
14.	*Zebrasoma scopas*	Brown Tang	1	1.20
15.	*Centropyge bispinosus*	Deep sea Coral Beauty	3	19.50
16.	*Pygoplites diacanthus*	Regal Angelfish – Pacific (12cm-15cm)	12	138.00
17.	*Forcipiger flavissimus*	Long Nose Butterfly fish	12	42.00
18.	*Pomancanthus imperator*	Emperor Angelfish (12cm-15cm)	4	105.00
19	*Acanthurus leucosternan*	Powder Blue	6	39.00
20	*Siganus vulpinus / lo vulpinus*	Fox Face	6	19.80

Table :20. Imported Ornamental Fish (2023-2024)Cont'd

No.	Scientific Name	Common Name	Quantity (PCS)	Value (US$)
21	*Hymenocera elegans (Picta)*	Harle queen Shrimp	12	54.00
22	*Pterosynchiropus splendidus*	Green Mandarin	24	36.00
23	*Centropyge bicolor*	Bicolor Angelfish	18	27.00
24	*Paracanthurus hepatus*	Blue Tang	6	78.00
25	*Centropyge eibli*	Pottery Angelfish	2	6.00
26	*Signigobius biocellatus*	Two Spot Goby	15	22.50
27	*Apolemichthys trimaculathus*	Flag fin Angelfish (12 cm-15 cm)	14	94.00
28	*Pseudocheilinus Hexataenia*	Six Line Wrasse	24	15.00
29	*Pseudochromis paccagnellae*	Royal Dotty back	21	16.80
30	*Siganus magnifica/lo magnifica*	Fox Face Indian	12	114.00
31	*Amphiprion melanopus*	Black Tomato Clown	12	10.80
32	*Euxiphipops Xanthometopon*	Blue Face Angel fish (5 cm – 6 cm)	3	111.00
33	*Amphiprion ephippium*	Fire Clown	6	18.00
34	*Nemateleotris magnifica*	Fire Fish Goby	15	37.50
35	*Premnas biaculeatus*	Gold Stripe Maroon Clown	12	54.00
36	*Centropyge vroliki*	Half Black Angelfish	15	10.50
37	*Centropyge tibicen*	Keyhole Angelfish	6	4.20
38	*Oxycirrhites typus*	Long Nose Hawk-fish	9	58.50
39	*Cirrhilabrus naokoe*	Naokoe Wrasse	6	45.00
40	*Pseudocheilinops ataenia*	Pink Streaked Wrasse	9	25.20

Table :20. Imported Ornamental Fish (2023-2024)Cont'd

No.	Scientific Name	Common Name	Quantity (PCS)	Value (US$)
41	*Acanthurus japonicus*	Powder Brown Tang	6	96.00
42	*Chelonon rostratus*	Copperband Butterfly Fish	15	19.50
43	*Zebrasoma desjardinii*	Sailfin Tang Indian Ocean	9	49.50
44	*Stonogobiops nematodes*	Yellow Rose Goby	12	10.80
45	*Cryptocentrus cinctu*	Yellow Watchman	12	14.40
46	*Premnas bioculeatus*	Maroon Clown	6	5.40
47	*Acanthurus pyroferus*	Chocolate Tang	9	40.50
48	*Acanthurus leucosternon*	Hybrid Powder Blue Tang	6	57.00
	Total		**2,349**	**4,770.22**

Table :21. Imported Feed and Ingredients for Fish/Shrimp and Ornamental Fish

No	Year	Fish Feed		Shrimp/Prawn Feed		Ornamental Fish Feed	
		Qty(Ton)	Value (US$-Million)	Qty(Ton)	Value (US$-Million)	Qty(Ton)	Value (US$-Million)
1.	2015-2016	11.00	-	2,034.00	-	-	-
2.	2016-2017	39.40	-	700.00	-	3.03	-
3.	2017-2018	259.00	0.11	870.00	0.47	-	-
4.	2018(April to Sep)	99.32	0.12	310.95	0.22	-	-
5	201-2019	306.30	0.31	2,113.75	2.68	11.12	0.03
6.	2019-2020	230.00	0.26	1,437.50	2.22	-	-
7.	2020-2021	-	-	2,834.50	2.92	19.24	0.05
8.	2021 Oct to 2022 March	-	-	2,053.00	2.78	20.46	0.05
9.	2022-2023	140.66	0.0.51	2,063.50	2.918	18.03	0.045
10	2023-2024	500.00	0.177	2,200.00	1.810	31.193	0.042

တီလားပီးယား, ***Oreochromis nilotica***

ရေချိုငါးမုတ်, ***Piractus brachypomus***

ငါးဖမ်းမ, ***Puntius gonionotus***

ငါးမြစ်ချင်း, Labeo rohita

ရွှေဝါငါးကြင်း, ***Cyprinus carpio***

ငါးကြင်းဖြူ, ***Cirrhinus mrigala***

ငါးသိုင်းခေါင်မွ, ***Catla catla***

ခေါင်းကြီးငါးကြင်း, ***Aristichthys nobilis***

ရောင်စုံငါးကြင်း, Cyprinus spp.

Fish and Prawn/shrimp Culture Species in Fish Hatchery Under DoF

မြက်စားငါးကြင်း
Ctenophryngodon idellus

ငွေရောင်ငါးကြင်း
Hypophthalmicthys molitrix

ငါးဇင်း ***Pangasianodon hypophthalmus***

ငါးကျည်း, ***Heteropneustes fossilis***

ငါးခူ ,***Clarias batrachus***

ရေငန်ကျားပုစွန်, ***Penaeus monodon***

ရေချိုပုစွန်ဆုဝ်ကြီး
Macrobrachium rosenbergii

Table.22. SEED PRODUCTION BY FISH HATCHERIES UNDER DOF

Unit - Million

No.	Myanmar Name	Common Name	Scientific Name	2021 Oct to 2022 March (Fingerling Size)	2022-2023	2023-2024
1.	Nga Myit Chin	Rohu	*Labeo rohita*	24.148	571.296	60.419
2.	Shwe Wa Nga Gyin	Common Carp	*Cyprinus carpio*	2.880	94.290	10.014
3.	Nga Khone Ma	Tarpian	*Barbodes gonionotus*	14.239	350.495	28.284
4.	Nga Phane	Nga Phane	*Cyprinus intha*	0.150		
	Total			**41.417**	**1,016.081**	**98.717**

Table.23. FISH HATCHERIES UNDER DOF (2021 Oct to 2022 March)

Unit - Million

No.	Fish Hatcheries	Location	Production
	Yangon Region		**10.200**
1.	Hlaw Kar	Mingalardone Township	4.200
2.	Twante	Twante Township	2.800
3.	Laydaukkan	Dagon(east) Township	3.200
	Bago Region		**6.030**
4.	Bago (Kali)	Bago Township	2.415
5.	Thanappin	Thanappin Township	2.475
6.	Oakpho	Oakpho Township	1.140
	Mandalay Region		**8.476**
7.	Pathein Gyi	Pathein Gyi Township	2.320
8.	Myit Thar	Myit Thar Township	2.300
9.	Natyekan	A-ma-ya-pu-ya Township	2.500
10.	Matayar	Ma-ta-yar Township	1.356
	Nay Pyi Taw		**1.425**
11.	Pyinmanar	Pyin-ma-nar Township	1.425
	Ayeyarwady Region		**8.365**
12.	Pathein	Pathein Township	1.125
13.	Talotehla	Ma-u-bin Township	2.400
14.	Hinthada	Hin-tha-da Township	2.100
15.	Pantanaw	Pan-ta-naw Township	0.540
16.	Aung hate	Ma-u-bin Township	2.200
	Magway Region		**1.000**
17.	Taungdwingyi	Taungdwingyi Township	0.350
18.	Pwint Phyu	Pwint Phyu Township	0.650
	Kachin State		**0.750**
19.	Waing-maw	Waing-maw Township	0.400
20.	Bamaw	Bamaw Township	0.350
21.	PutaO	PutaO Township	-
	Sagaing Region		**1.610**
22.	Shwe Bo	Shwe Bo Township	0.905
23.	Yay Oo	Yay Oo Township	0.495
24.	Htee chaint	Htee chaint Township	0.210
	Mon State		**0.900**
25.	Thahtone	Thahtone Township	0.900
	Shan State		**0.350**
26.	Nyaung Shwe	Nyaung Shwe Township	0.350
	Kayin State		**0.320**
27.	Pha aan	Pha aan Township	0.320

Table.24. FISH HATCHERIES UNDER DOF (2022-2023)

Unit - Million

No.	Fish Hatcheries	Location	Production
	Yangon Region		**2.63**
1.	Hlaw Kar	Mingalardone Township	1.10
2.	Twante	Twante Township	0.71
3.	Laydaukkan	Dagon(east) Township	0.82
	Bago Region		**1.30**
4.	Bago (Kali)	Bago Township	0.51
5.	Thanappin	Thanappin Township	0.54
6.	Oakpho	Oakpho Township	0.25
	Mandalay Region		**2.45**
7.	Pathein Gyi	Pathein Gyi Township	0.62
8.	Myit Thar	Myit Thar Township	0.61
9.	Natyekan	A-ma-ya-pu-ya Township	0.81
10.	Matayar	Ma-ta-yar Township	0.41
	Nay Pyi Taw		**0.42**
11.	Pyinmanar	Pyin-ma-nar Township	0.42
	Ayeyarwady Region		**2.14**
12.	Pathein	Pathein Township	0.28
13.	Talotehla	Ma-u-bin Township	0.71
14.	Hinthada	Hin-tha-da Township	0.13
15.	Pantanaw	Pan-ta-naw Township	0.52
16.	Aung hate	Ma-u-bin Township	0.50
	Magway Region		**0.26**
17.	Taungdwingyi	Taungdwingyi Township	0.11
18.	Pwint Phyu	Pwint Phyu Township	0.15
	Kachin State		**0.18**
19.	Waing-maw	Waing-maw Township	0.10
20.	Bamaw	Bamaw Township	0.08
21.	PutaO	PutaO Township	-
	Sagaing Region		**0.39**
22.	Shwe Bo	Shwe Bo Township	0.12
23.	Yay Oo	Yay Oo Township	0.23
24.	Htee chaint	Htee chaint Township	0.04
	Mon State		**0.18**
25.	Thahtone	Thahtone Township	0.18
	Shan State		**0.12**
26.	Nyaung Shwe	Nyaung Shwe Township	0.12
	Kayin State		**0.08**
27.	Pha aan	Pha aan Township	0.08

Table.25. FISH HATCHERIES UNDER DOF (2023-2024)

Unit - Million

No.	Fish Hatcheries	Location	Production
	Yangon Region		**27.158**
1.	Hlaw Kar	Mingalardone Township	11.358
2.	Twante	Twante Township	7.555
3.	Laydaukkan	Dagon(east) Township	8.245
	Bago Region		**13.923**
4.	Bago (Kali)	Bago Township	5.506
5.	Thanappin	Thanappin Township	5.796
6.	Oakpho	Oakpho Township	2.621
	Mandalay Region		**23.222**
7.	Pathein Gyi	Pathein Gyi Township	5.485
8.	Myit Thar	Myit Thar Township	5.692
9.	Natyekan	A-ma-ya-pu-ya Township	7.529
10.	Matayar	Ma-ta-yar Township	4.516
	Nay Pyi Taw		**3.300**
11.	Pyinmanar	Pyin-ma-nar Township	3.300
	Ayeyarwady Region		**19.398**
12.	Pathein	Pathein Township	3.510
13.	Talotehla	Ma-u-bin Township	8.088
14.	Hinthada	Hin-tha-da Township	1.740
15.	Aung hate	Ma-u-bin Township	6.060
	Magway Region		**3.020**
16.	Taungdwingyi	Taungdwingyi Township	1.424
17.	Pwint Phyu	Pwint Phyu Township	1.596
	Kachin State		**2.000**
18.	Waing-maw	Waing-maw Township	1.200
19.	Bamaw	Bamaw Township	0.800
	Sagaing Region		**2.591**
21.	Shwe Bo	Shwe Bo Township	0.512
22.	Yay Oo	Yay Oo Township	1.653
23.	Htee chaint	Htee chaint Township	.0426
	Mon State		**1.900**
24.	Thahtone	Thahtone Township	1.900
	Shan State		**1.150**
26.	Nyaung Shwe	Nyaung Shwe Township	1.150
	Kayin State		**1.054**
27.	Pha aan	Pha aan Township	1.054

Table.26. SHRIMP/PRAWN HATCHERIES UNDER DOF

Unit - Million

No.	Shrimp/Prawn Hatcheries Shrimp (Penaeus monodon)	Location	2021 (Oct to 2022 March)	2022-2023	2023-2024
	Yangon		**-**	**0.90**	**1.45**
1.	Kyauk-tan(Freshwater)	Kyauk tan Township	-	0.10	0.75
	Kyauk-phyu	Kyauk phyu Township		**0.80**	**0.70**
	Rakhine		**6.080**	**12.70**	**4.10**
3.	Kyauk-phyu	Kyauk phyu Township	2.500	6.50	4.00
4.	Ye-chan-pyin		2.360	3.20	-
5.	Soe-me-kyi		1.220	3.00	0.10

Table.27. FISH SUPPLY IN YANGON

Unit - Thousand Metric Ton

No.	Year	Fish Supply		
		Fresh Water	Marine	Total
1.	2015-2016	127.56	159.46	287.02
2.	2016-2017	124.65	170.58	295.23
3.	2017-2018	114.45	153.44	267.89
4.	2018 (April to Sep)	50.67	49.01	99.68
5.	2018-2019	118.40	137.01	255.41
6.	2019-2020	104.82	143.70	248.51
7.	2020-2021	183.81	120.86	304.67
8.	2021Oct to 2022March	115.02	72.61	187.63
9.	2022-2023	253.69	125.13	378.82
10.	2023-2024	242.02	164.46	406.48

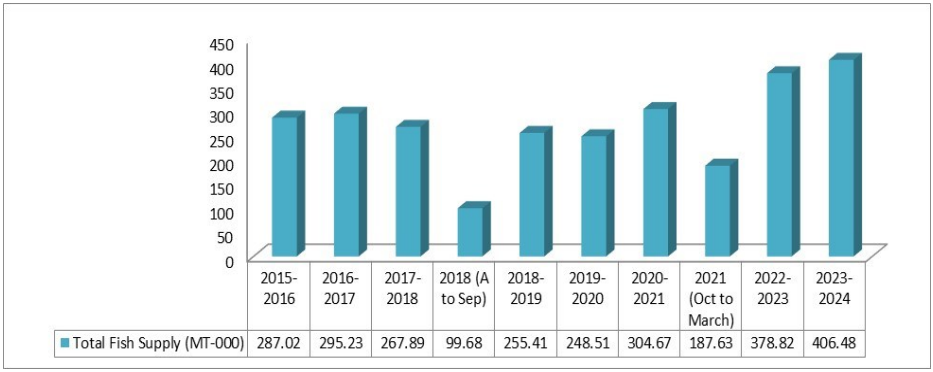

Fig 5: Fish Supply in Yangon

Table.28. ICE PLANTS

NO.	REGION AND STATE	NUMBER OF PLANTS	CAPACITY OF ICE PLANT (METRIC TON PER DAY)
1.	YANGON	106	2364.06
2.	TANINTHAYI	48	2535.60
3.	RAKHINE	39	456.00
4.	AYEYARWADY	70	869.00
5.	MON	29	528.00
6.	MANDALAY	7	30.00
7.	SHAN	2	3.20
	TOTAL	301	6785.86