

In the name of God

"Management measures for sustainable exploitation of neritic tuna stocks in Iran"

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Abstract

In 2021, the country produced an estimated total of 1,258 thousand tonnes of aquatic products, with 702 thousand tonnes originating from marine capture fisheries and 556 thousand tonnes from aquaculture activities.

The large pelagic species group, with its significant and important share in the country's fishing, accounts for approximately 334 thousand tonnes, representing approximately 48% of the country's total catch in 2021.

The total estimated quantity of tuna and tuna-like species is around 274 thousand tonnes. The neritic tuna catch comprises about 136 thousand tonnes, of which the dominant species are longtail tuna, Narrow-barred Spanish Mackerel, Indo-Pacific King Mackerel, Kawakawa, and Frigate tuna.

Given that neritic tuna species in Iran are mainly harvested through small-scale fishing operations in coastal waters, they are of considerable socioeconomic importance to the livelihoods and daily lives of the coastal fishing community. The survey reveals that more than 6,000 fishing boats and dhows are involved in neritic tuna fishing. Fishing methods such as gillnetting, trolling, and longlining are commonly used for neritic tuna fishing.

To manage the exploitation of neritic tuna stocks in the country, the main approach is to pay attention to the policy of reducing and adjusting the fishing effort in this sector. This policy is in line with that of the Indian Ocean Tuna Commission regarding balancing the amount of harvest from the related stocks and maintaining sustainable fishing conditions.

Every year, efforts are made to adapt and implement the recommendations of the Indian Ocean Tuna Commission (IOTC) in Iran, with a focus on finding suitable areas for implementation that will involve the cooperation and participation of the fishing community.

Strengthening fisheries education and training programs to enhance fishing conditions is considered a crucial approach in managing the sustainable exploitation of neritic tuna stocks in the country.

One ongoing measure aimed at taking advantage of the potential and strength of the tuna fishing community is the formation and activation of the **Hemmat Fishing Group** (*Fishermen's Cooperative Assistance Network*) in the tuna sector.

This paper discusses management measures related to sustainable exploitation of neritic tuna stocks in Iran. In addition to this, the trend of neritic tuna fishing will be evaluated by examining key fishing indicators such as fishing effort and average catch per unit of effort.

1. Introduction

The tuna fishery is a critical part of the marine ecosystem and a vital source of protein for millions of people worldwide. However, it is also one of the most heavily exploited fisheries in the world, with some species on the verge of collapse due to overfishing. In recent years, overfishing and other human activities have caused a dramatic decline in the global population of neritic tuna. To address this issue, various measures have been implemented by the Regional Fisheries Organizations (RFOs), and stakeholders to promote the conservation and sustainable management of neritic tuna stocks.

2. Total fishery and aquaculture production

Iran's fisheries production consists of two parts: aquaculture activities and marine capture fisheries activities. Each of these activities has its own social and technical considerations that are specific to their respective requirements. The fishing community, which constitutes a large percentage of the population in coastal areas of the Caspian Sea, Persian Gulf, and Oman Sea, has always been a center of attention and sensitivity in fishing management plans.

In 2021, Iran's overall fish production amounted to 1,258,910 tonnes of fish, with 672,596 tonnes (54%) originating from the Persian Gulf, Oman Sea and High Seas; around 29,864 tonnes (2%) from the Caspian Sea, and 556,450 tonnes (44%) through the aquaculture. (Fig. 1)

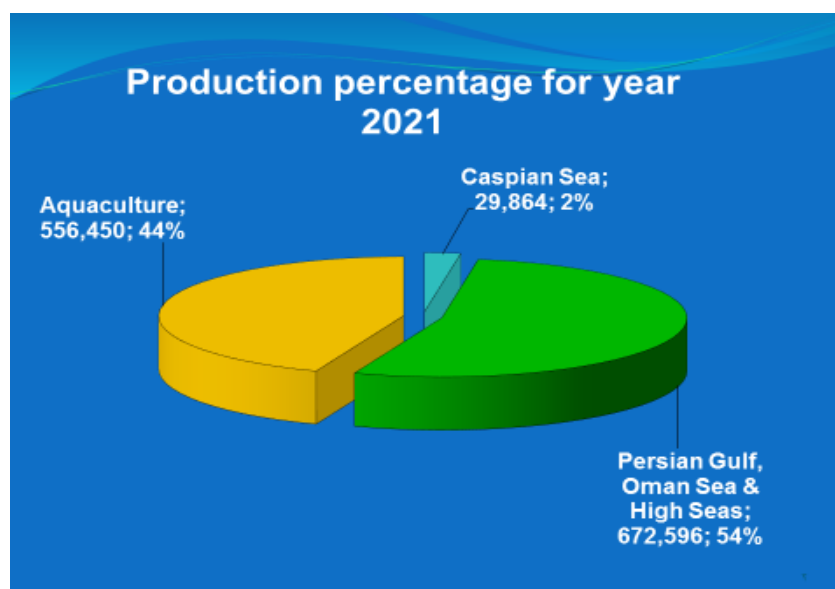


Figure 1: Total catch & production of Iran in 2021

3. Marine capture fishery (Iranian southern Fisheries)

In 2021, the total capture fisheries production in Iranian southern fisheries was approximately 673 thousand tonnes. However, capture fisheries in the Persian Gulf, Oman Sea, and High Seas have declined since 2018.

The following chart (Fig. 2) displays the trend of total catch harvested from the Persian Gulf, Oman Sea, and High Seas from 2001 to 2021. The data indicate an upward trend, peaking at 731 thousand tonnes in 2018. However, this trend was followed by a slight decrease to 673 thousand tonnes in 2021.

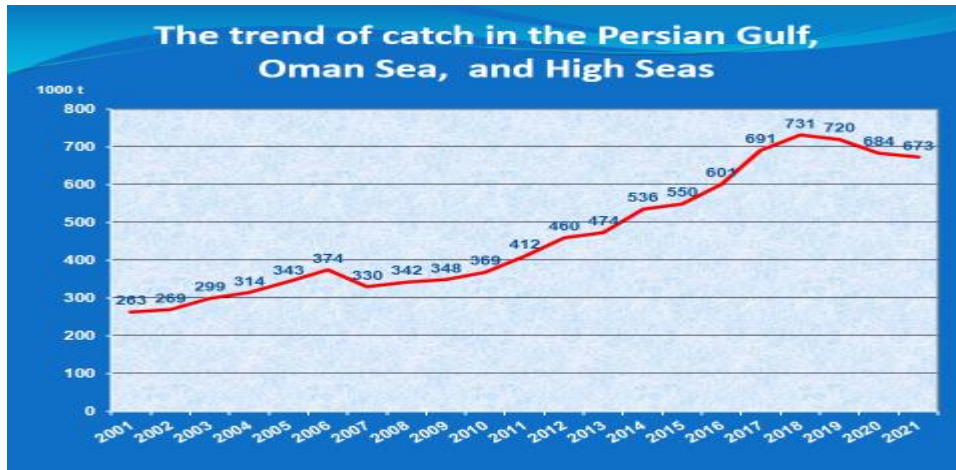


Figure 2: Trends in catch data for Iranian southern Fisheries (2001-2021)

The given pie chart (Fig. 3) provides a clear breakdown of the catch for 2021 by species group. Large pelagic species make up the largest portion of the catch, accounting for 334 thousand tonnes (50%). Demersal species constitute the second-largest portion, representing 229 thousand tonnes (34%) of the total catch.

Small pelagic species make up 101 thousand tonnes (15%) of the catch. Shrimp, on the other hand, comprises only 9 thousand tonnes (1%) of the total catch.

This pie chart provides important information for stakeholders in the fishing industry, helping to identify the dominant species groups being caught and assisting with the development and implementation of effective management and conservation measures.

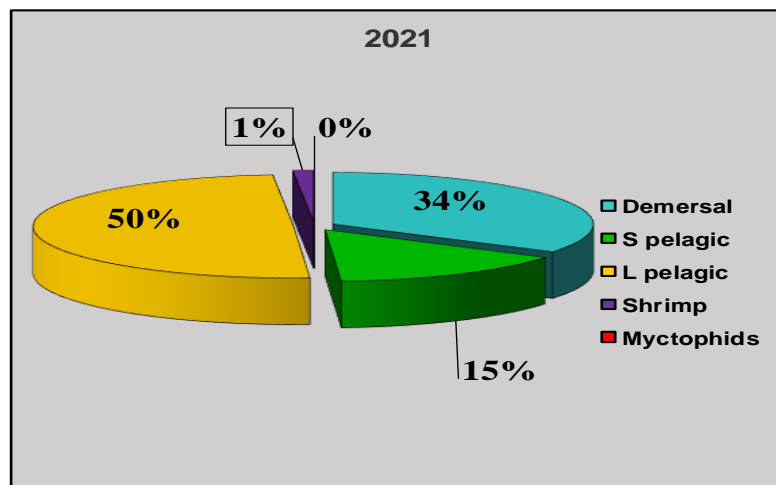


Figure 3: Catch by species group (2021)

The illustrated line chart (Fig. 4) represents the trend of the catch for various species groups in the Persian Gulf, Oman Sea, and High Seas from 2001 to 2021,

providing valuable insights into the performance of the fishing industry in these regions. The chart shows an overall increasing trend in catch for large pelagic, small pelagic, and demersal species over the years, indicating the successful capture of these species.

However, the catch trend for shrimp and myctophids remained steady over the years. Interestingly, since 2019, there has been a decline in the catch trend for demersal species, decreasing from 283 thousand tonnes to 229 thousand tonnes in 2021. In a similar vein, the myctophids catch rate experienced a significant decline from 32 thousand tonnes in 2019 to zero in 2021, primarily due to the imposition of a seasonal ban on this particular species.

These trends could be attributed to a variety of factors, such as changes in environmental conditions, fluctuations in market demand, or the implementation of new fishing regulations. It is critical to monitor the catch trends for each species group closely, especially in these regions, which are known for their rich and diverse marine ecosystems.

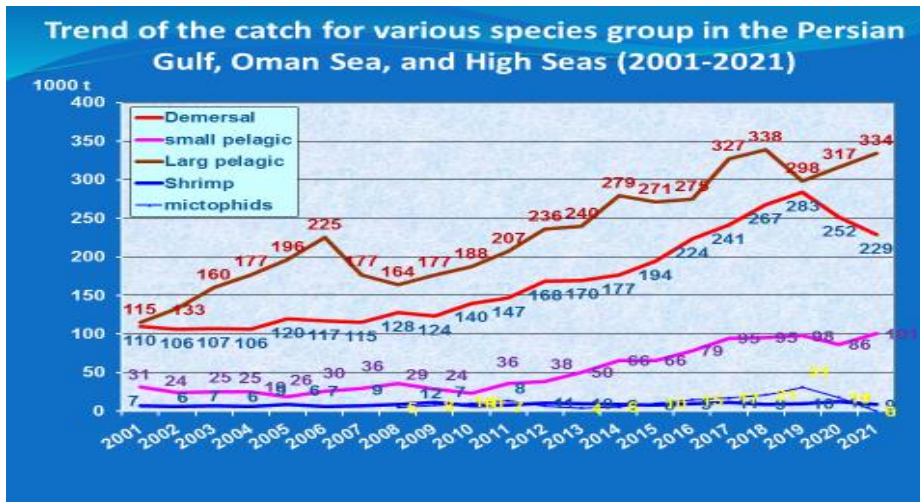


Figure 4: Trends in Catch for Different Species Groups (2001-2021)

4. Fishing cooperatives

Fishing cooperatives have an important role to play in the conservation and management of fisheries resources. In addition to their conservation duties, fishing cooperatives have a responsibility to promote the social and economic welfare of their members. As members of a cooperative, fishers have a shared responsibility to ensure the sustainable use of fish stocks and to protect marine ecosystems for future generations.

Cooperatives provide members with training and education opportunities to help them improve their fishing skills and knowledge, provide them with loans and other financial assistance to help them purchase or upgrade their fishing equipment, or to cover operating costs. To fulfill this responsibility, fishing cooperatives must work closely with government agencies, NGOs, and other stakeholders to implement effective management measures, such as catch limits, gear restrictions, and time-area closure.

In order to collect data on catch, size, and effort, they collaborate with field samplers at designated landing centers.

However, the Iran Fisheries Organization (IFO) controls and monitors the function of these fishery cooperatives. Currently, around 170 fishing cooperatives are operating in Iranian southern fisheries.

5. Fishing gear and fleet structure

The fishing methods targeting large pelagic species in Iran include gillnet, purse seine, longline (traditional boats), as well as trolling by small boats in coastal fisheries. The gillnet fleet, in particular, consists primarily of locally made wooden and fiberglass vessels.

a. Total No. of fishing vessels in Iranian southern fishery

The total number of fishing vessels in Iranian southern fisheries is nearly 10,739, of which around 6,118 fishing vessels are engaged in tuna fishing activities. Of all fishing vessels, 7,230 are boats, 3,387 are dhows, and 122 are industrial fishing ships. The number of fishermen directly engaged in fishing activities is about 126,527 individuals.

b. Total No. fishing vessels engaged in tuna and tuna-like fishery

In 2021, there were approximately 6,118 fishing vessels engaged in catching large pelagic species in the IOTC area of competence. This included five active purse seiners above 1,000 GT, 377 gillnet fishing dhows over 100 GT, 297 gillnet dhows between 51 and 100 GT, 497 gillnet dhows between 3 and 50 GT, and 3,168 gillnet fishing boats under 3 GT. Additionally, 1,771 trolling boats under 3 GT with outboard engines were also involved in day-long coastal fishing operations. *Table 1* shows the number of fishing vessels by gear type and vessel capacity.

Table 1 Number of crafts operating in the IOTC area, by gear type and size

GEAR GROUP	Capacity GT	No. of crafts
Purse seine	500 to 1000 t	2
	>1000 t	5
Total Purse seine fishing Craft		7
Coastal Artisanal Longline (seasonal and temporal)	< 3	280
	51 to 100	70
	100 to 200	0
	>1000	1
Total Coastal Artisanal Longline (seasonal and temporal) fishing Craft		351
Gillnet	< 3 t	3,168
	3 to 20 t	226
	21 to 50 t	271
	51 to 100 t	297
	>100 t	377
Total Gillnet fishing Craft		4,339
Trolling	< 3 t	1,771
Total Trolling fishing Craft		1,771
Total all Gear fishing Craft		6,118

Around 351 gillnet fishing dhows were active as longliners in 2021. These vessels were not included in the overall count of fishing vessels, as they are seasonal and temporary, operating only during certain fishing seasons.

6. Catch and Effort data (By gear and Species)

For this study, catch and effort data were collected from 69 landing centers located along Iran's southern coast. A stratified random sampling method was employed to ensure that the data was representative of the entire fishing fleet. Approximately 10% of the fishing vessels, including dhows and boats of various types, were randomly selected, and their fishing data were collected through questionnaires by trained field samplers.

In addition, the number of fishing days at sea is recorded in the data collection software, for all active fishing vessels. These data are raised based on the total fishing effort.

There is specific *scientific capture fishery statistic committee* at both the provincial and national levels, and fishery research experts and administrative officers are members of these committees. In these committees, trends of data collection and raising are evaluated and ultimately approved.

7. Fishing effort management

There is growing concern about the increasing fishing effort and the potential overfishing of these species. Fishing effort refers to the amount of fishing activity, including the frequency of fishing trips, and the fishing gear used. Excessive fishing effort can lead to a decline in fish populations, which can have significant ecological and economic impacts.

To mitigate the effects of fishing effort on neritic tuna populations, Iran has taken several conservation and management measures. These include implementing limitations on engine power and dimensions for active fishing vessels according to the *Vessel Replacement Guidelines*, enforcing a 20-day moratorium or cessation of all fishing activities by fishing vessels in all provincial fishing grounds, establishing a seasonal fishing cessation for specific neritic tuna species, including Narrow-barred Spanish Mackerel (COM), and implementing a *Fishing Effort Management Plan* in a designated area of the fishing grounds to control and adapt fishing effort. This plan will involve managing and adjusting the activities of various groups of vessels within the active fishing fleet.

Furthermore, several measures have been put into effect to decrease fishing efforts in specific regions. These measures include restricting the number of vessels permitted to fish in a particular area, regulating the use of fishing gear, shortening fishing seasons, reducing fishing days, increasing the mesh size in fishing nets, and promoting the adoption of selective fishing techniques that exclusively target the intended species. By adopting these measures, it is possible to sustainably manage neritic tuna populations and guarantee the long-term sustainability of the fishing industry, which is heavily depends on them.

Table 2 provides an overview of the annual fishing effort for large pelagic species by various types of fishing fleets, including *purse seine*, *gillnet*, *longline* (traditional boats), and *trolling*, from 2012 to 2021.

Table 2. Annual fishing effort by different vessel categories (days)

GEAR GROUP	Capacity GT	Fishing effort by gear(days)									
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Purse seine	500 - 1000	0	0	0	0	0	0	0	0	0	0
	1000 - 2000	450	981	727	1,005	1,164	1,085	715	1,164	401	376
Total Purse seine fishing effort		450	981	727	1,005	1,164	1,085	715	1,164	401	376
Coastal_Artisanal_Longline **	< 3	0	0	0	0	18,000	19,440	24,300	20,000	34,000	45,000
	21 to 50	0	0	0	0	3,200	6,600	14,025	11,040	9,520	0
	51 to 100	0	0	0	0	580	580	1,190	1,200	0	16,800

8. Current Status of Tuna Fisheries in Iran

The tuna species are the major component in large pelagic fisheries. Tuna are highly migratory species travelling across the region. The catch supplies fresh and frozen tuna markets for local consumption and for export as well as canning industries. Given the importance of the tuna fisheries, their sustainability needs to be monitored through the collection of a broad range of biological, economic and fisheries information. This information is used in stock assessments to evaluate the status of the tuna stocks.

The graph in Figure 5 represents the trend in catch quantity for tuna and tuna-like species over the years from 2001 to 2021. The graph shows an upward trend, with the catch tonnage increasing from 94 thousand tonnes in 2001 to 274 thousand tonnes in 2021, which represents a significant increase over the period. This increase can be attributed to factors such as improved fishing gear and better fishing practices.

The upward trend in catch points to the success of the fishing industry in utilizing modern techniques and equipment to effectively capture tuna and tuna-like species. The graph provides valuable information to stakeholders, such as fishers, fisheries management authorities, and researchers, about the performance of the industry over time and can be used to monitor and evaluate the effectiveness of conservation and management measures in place to ensure sustainable fishing practices.



Figure 5: Catch Trends of Tuna and Tuna-like Species (2001-2021)

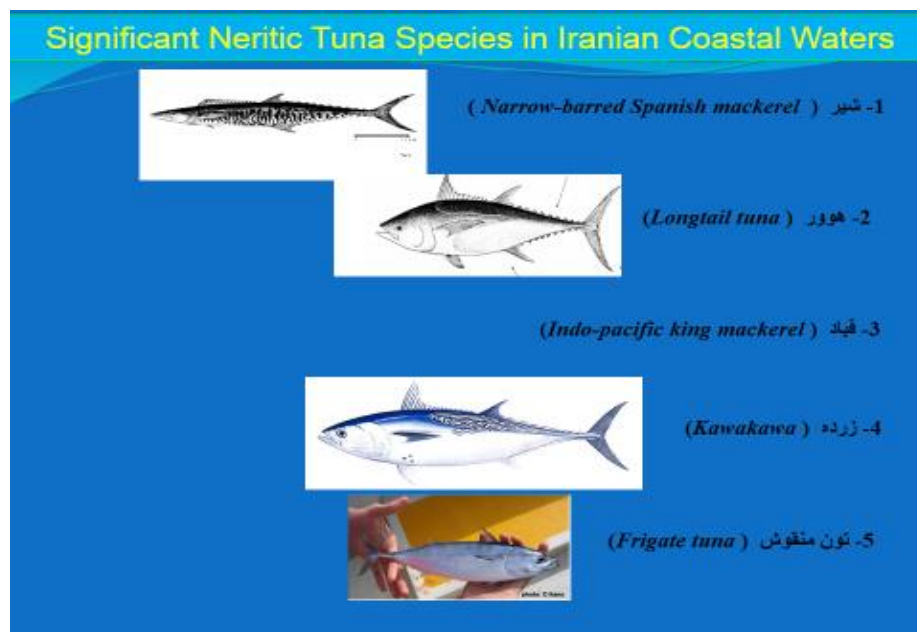
9. Overview of Neritic Tuna Stocks in Iran

The neritic tuna fishery is a vital part of Iran's fisheries, both economically and culturally. However, like many marine resources, overfishing and unsustainable exploitation practices have put this important fishery at risk. To ensure the long-term sustainability of Iran's neritic tuna stocks, effective management measures must be implemented. This paper will provide an overview of the current state of neritic tuna fisheries in Iran, the need for sustainable exploitation management, and the management measures that have been implemented. Additionally, this paper will explore the challenges and strategies for improving management in the future.

10. Neritic tuna species

The catch of neritic tuna undoubtedly plays a crucial role in supporting the livelihood and social welfare of coastal communities, as well as having a significant impact on employment, economic aspects, and overall well-being.

The tuna species found in various fishing grounds of Iran (Islamic Republic of) are diverse, with dominant species including Longtail tuna (LOT), Narrow-barred Spanish Mackerel (COM), Kawakawa (KAW), Frigate tuna (FRI) and Indo-Pacific King Mackerel (GUT).



Some of these species are utilized in fish cannery plants, while the rest are consumed as food by people. The quantity of neritic tuna caught varies depending on many factors, including fishing method, season, and location.

The following chart (Fig. 6) provides a clear picture of the catch quantities of various tuna and tuna-like species in 2021. The chart shows that SKJ had the highest catch amount, accounting for 68,107 tonnes (25%) of the total catch, followed by LOT at 19% and YFT at 16%."

The catch rates for the other tuna and tuna-like species, including KAW, COM, Billfish, GUT, and FRI, were 14%, 10%, 9%, 4%, and 3%, respectively.

The least catch was recorded for bigeye tuna (BET) with 620 tonnes (0.2%) of the total catch. The significant difference in catch quantity among different species highlights variations in market demand and value for each species.

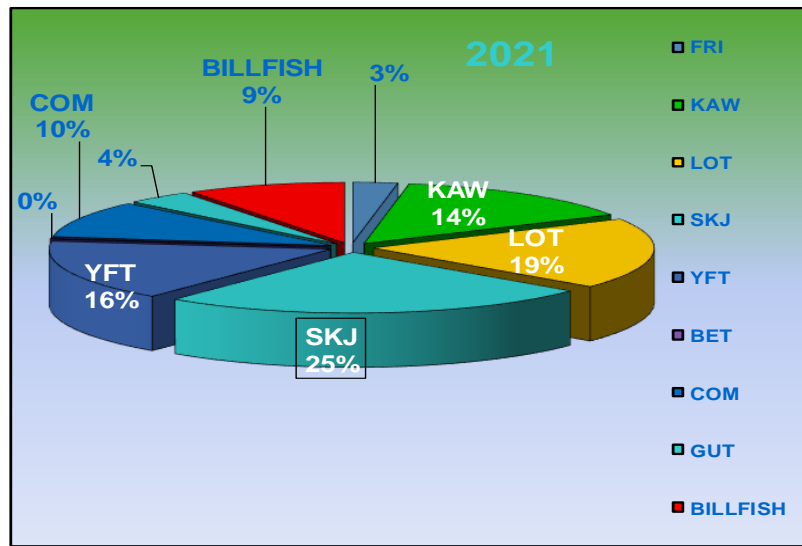


Figure 6: Trends of the catch for various tuna and tuna-like species (2021)

The graph (Fig. 7) illustrates the catch trend for several neritic tuna species from 2001 to 2021. It is evident that the catch for all neritic tuna species showed an upward trend during this period.

The majority of the catch comprised of Longtail tuna (LOT), while the least catch was attributed to Indo-Pacific king Mackerel (GUT). Kawakawa ranked second in terms of catch amount, with Narrow-barred Spanish Mackerel (COM) following in third place. Furthermore, the catch quantity of Frigate tuna (FRI) is approximately equal to that of Indo-Pacific King Mackerel (GUT).

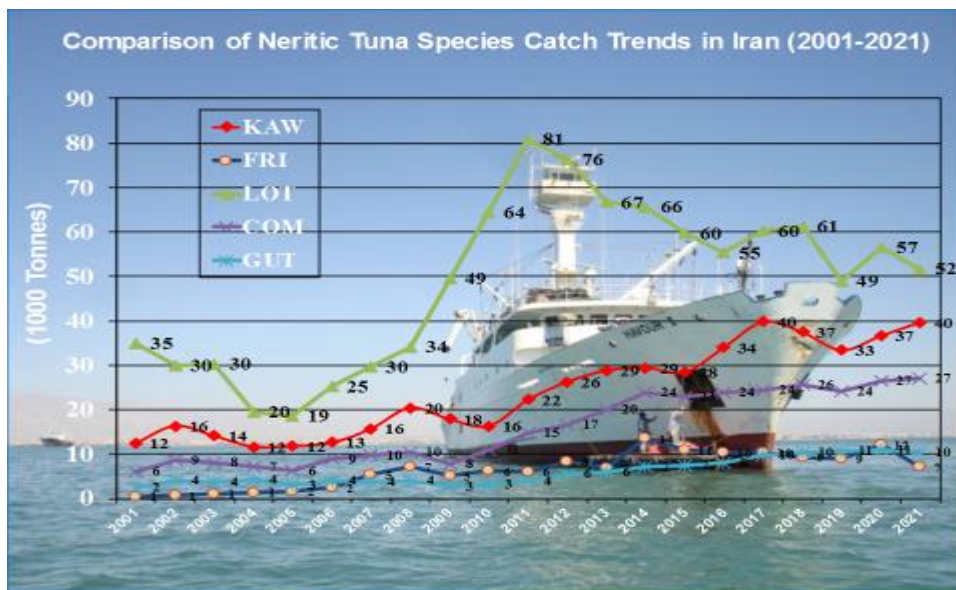


Figure 7: comparison of neritic tuna species catch trends in Iran (2001-2021)

The graph (Fig. 8), presents the trend of catch for tunas. During the studied period from 2001 to 2021, neritic tuna catch made up a larger share of the total tuna

catch composition, accounting for approximately 54%. On the other hand, tropical tuna catch accounted for around 46% of the total catch during the same period. The data suggests that despite the increasing trend of tropical tuna catch during 2012 to 2021, the neritic tuna catch is dominant in the total catch.

As the chart shows, there is a significant increase in the volume of tropical tuna catch from 2001 to 2006, reaching a peak of 143 thousand tonnes in 2006. However, the catch then experienced a steep decline, dropping to a mere 46,000 tonnes in 2011. The reason for the decrease is attributed to the threat of piracy in the fishing grounds of the western High Seas, specifically in the areas near the Somali waters. This has resulted in a substantial reduction in the fishing effort for tropical tuna in the High Seas. Consequently, the catch of neritic tuna increased in Iranian coastal fishing grounds as the fishing fleet shifted its focus to this species.

Piracy is a major threat to legitimate maritime activities, causing, investments, and fishing vessels operations to be deterred.

During last two decades, piracy has expanded into the High Sea areas and there has been a rise in attacks on fishing, particularly in the Western High Seas. As a result, a large number of Iranian artisanal tuna fishing dhows and around five purse seiners relocated the Western High Seas fishing grounds and transferred to Iranian coastal waters to avoid the human and financial risks associated with piracy.

This maneuver led to a significant reduction in the amount of fishing effort dedicated to the capture of tropical tunas starting in 2007. Additionally, the fishing fleet became concentrated on catching neritic tuna in Iranian coastal waters.

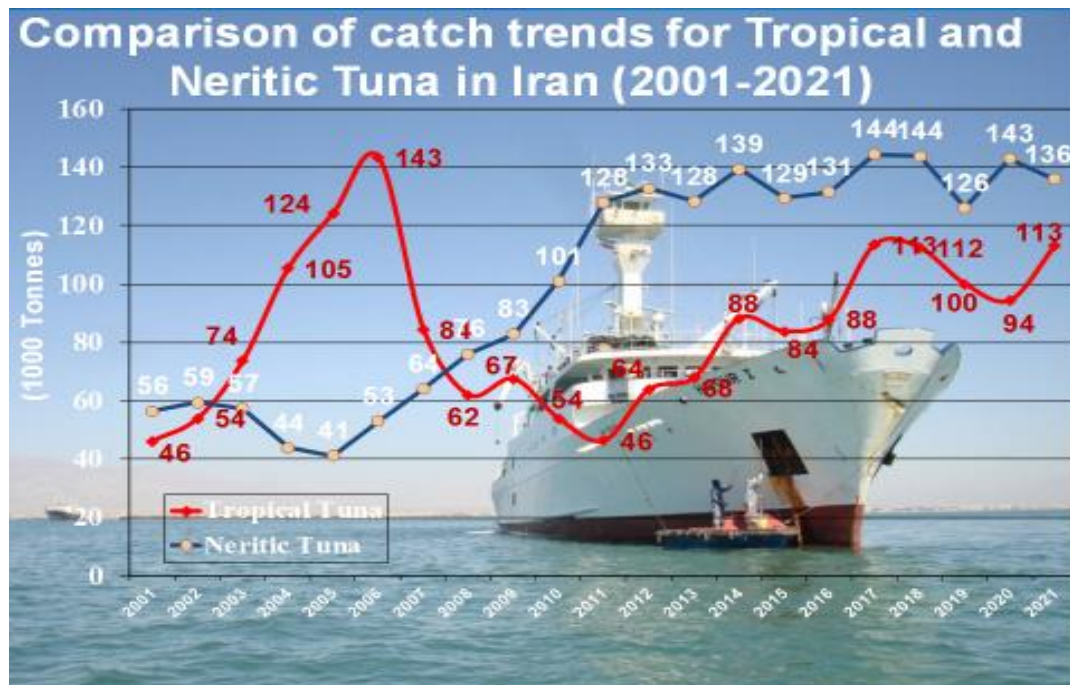


Figure 8: Comparison of catch trends for Tropical and Neritic Tuna in Iran (2001-2021)

11. Size data collection:

a. Importance of Size Data Collection

Collection of size data for neritic tuna is crucial in understanding their population dynamics, growth rates, and the impacts of fishing on their populations, and, for creating effective tuna management strategies. The data collected will serve as one of the primary sources of scientific information supporting the management of tuna populations. Size data collection for neritic tuna can provide crucial insights into the conservation and sustainability of these populations, as well as the information necessary for effective resource management.

Size sampling shall be run under strict and well described random sampling schemes which are necessary to provide unbiased figures of the sizes taken. Sampling coverage shall be set to at least one fish measured by ton caught, by species and type of fishery, with samples being representative of all the periods and areas fished.

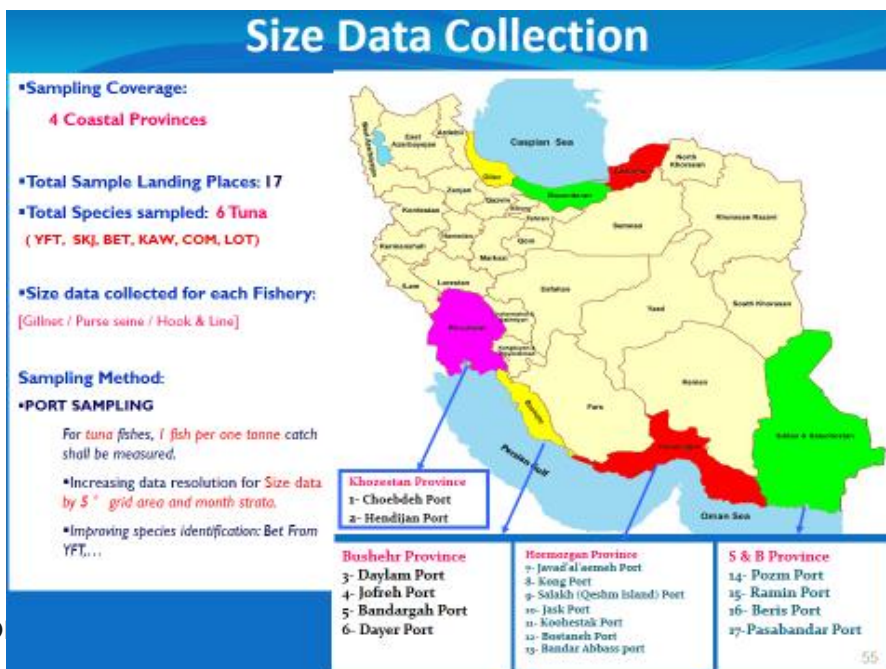
b. Current method for size data collection on neritic tuna in Iran

In order to improve the assessment of neritic tuna species in the Persian Gulf and Oman Sea, port sampling has been conducted under random sampling scheme in four coastal provinces, and field samplers collected size data at 17 sample landing centers. At least one fish per tonne has been measured by species and type of fishery.

In our study, we utilized the direct measurement method. This method provides unbiased and accurate figures of the size taken, which is essential for estimating population size and growth rates over time. Although it can be time-consuming, it is more accurate than using estimations from catch data.

The size data is collected through measuring Fork Length (FL). Understanding the size distribution of these tuna populations across different fishing gears is crucial for effective fisheries management and conservation efforts. The data is collected using various fishing gears, including gillnet, hook-and-line, and longline.

To ensure accurate estimates, especially for larger fish and during spawn seasons, rigorous statistical analysis and adequate sample sizes are necessary for effective size data collection and the development of stock assessment models for neritic tuna species.



a. Regulatory Framework

Conservation and management measures for sustainable exploitation of neritic tuna stocks include a range of strategies aimed at reducing overfishing, protecting spawning grounds, and ensuring the long-term viability of these important fish populations. One key approach is the establishment of catch limits and quotas, which can help to prevent overfishing by limiting the amount of tuna that can be caught each year. In order to maintain optimal management of fishing, Iran has implemented a plan to reduce the fishing effort of a selected group of vessels, with the objective of promoting sustainable exploitation of tuna stocks.

Additional conservation and management measures implemented by Iran are: setting regulations on fishing gear and methods, declaring closed seasons and areas, and regulating the process of issuing fishing licenses. These actions are aimed at ensuring the sustainable management of tuna populations and the long-term viability of the fishing industry.

Therefore, it is essential to regulate the use of fishing gear to minimize bycatch and improve the selectivity of fishing methods. In this way, Iran is currently making efforts to shift its focus from gillnet fishing to longline fishing. By making this change, Iran is aiming to promote sustainable and selective fishing practices, which limit the bycatch of non-target species and protect the broader marine environment. To support and reinforce this strategy, Iran has collaborated with the United Nations Industrial Development Organization (UNIDO) since 2017. Collaboration with UNIDO is a positive step towards promoting sustainable economic growth in the fishing industry. By implementing best practices for longline fishing and improving the quality of its tuna products, Iran can improve quality of its tuna products, making them more appealing to consumers in export markets.

Over the past year, we have organized several training sessions focused on the identification of tunas, billfishes, and shark species for our fishermen and field samplers, with a particular reference on tuna species. Through these sessions, we have gathered field samplers with the intent to identify various species such as kawakawa and frigate tuna among others. This has helped us to improve the accuracy of our catch data and ensure that we are complying with regulations on sustainable fishing practices. By continuing to invest in training and technology, we hope to further improve our ability to manage these valuable resources for generations to come.

b. Monitoring and Enforcement

The Iran fisheries organization has established a system for monitoring and enforcing the fishing regulations in the country. This includes regular monitoring of landings and processing facilities. Efforts are undertaken to enhance the processes of controlling and customizing tuna fishing through port controls, monitoring of catch unloading, regulations governing fishing gears and tackles, and other measures implemented in the fishing grounds. Iran has taken additional measures to promote a monitoring system by equipping some distant-water fishing dhows with a Vessel Monitoring System.

The penalties for violating fishing regulations are severe. In this regard, actions are being taken to address fishing violations committed by vessels in the tuna fishing

sector, and a commission is in place to deal with such violations. This commission is also implementing deterrent policy measures, and if necessary, it refers the violations to judicial authorities.

13. The key actions are currently underway

- Localizing and adapting the Indian Ocean Tuna Commission (IOTC) requirements and approvals to align with the Iran's specific implementation conditions and policies.
- Promoting greater participation and involvement of fishing cooperatives, RFOs and stakeholders in the management processes of tuna fish.
- The Iran National Tuna Commission (INTC) is being established with the involvement of all interested parties including relevant government departments and stakeholders.
- Conducting workshop on the sustainable management of tuna stocks exploitation.
- Coordinated efforts have been undertaken to implement the plan for marking fishing gears based on Resolution 19/04.
- Efforts are being undertaken to coordinate the implementation of the pilot project of pole-and-line fishing in Iran in partnership with one of the country's universities.
- Promotion and development of longline (for *LOT*) and trolling (for *COM*) fishing methods for neritic tuna species.
- The integrated fishing management system is a comprehensive database of fishermen that is web-based. Some parts of the system are currently available for use, but others are still in development. The programmers are working to complete these remaining features. Some of the capabilities of the system that will be made available include an electronic fishing license issuance system and a comprehensive database of all active fishing vessels. The system will also have a feature for *data collection processing and reporting system*. Additionally, the system will interface with *fishermen's insurance system, Ports and Maritime Organization system, Port State Control System* for departure and arrival of fishing vessels, and several other features. Once the system is fully implemented, it will be possible to receive real-time information on fisheries management activities.

14. Challenges in the management of the neritic tuna fishing sector

- Multi-species multi-gear issue

- Non-standardized fishing tackles (Unauthorized or Illegally modified fishing gear)
- Bycatch of non-target species and illegal fishing practices
- The socio-economic factors that contribute to overfishing
- Impact of climate change on tuna populations
- Marine pollution and environmental issues

15. Collaborative Approaches to Management

Collaborative approaches to management, such as co-management and community-based management, involve the sharing of responsibility and decision-making between stakeholders, including fishing communities, research institutions, government agencies, fishers, and other community members. These approaches have been successful in achieving sustainable fisheries management, as they ensure that local knowledge and practices are incorporated into management plans and that all stakeholders have a vested interest in the sustainability of the fishery.

Regarding this issue, Iran's fisheries management policy has placed significant emphasis on promoting the active participation of fishermen, fishing cooperatives, and other players in the tuna processing industry in efforts to manage and protect tuna stocks. By involving these key stakeholders in the decision-making process, Iran has been able to benefit from their local knowledge and expertise.

A notable initiative aimed at leveraging the abilities and strength of the tuna fishing community is the formation and activation of the “**Hemmat Fishing Group**”, which is a network of public-private partnerships focused on tuna fishing. This initiative is expected to play an important role, particularly in the sustainable management and protection of neritic tuna fisheries in Iranian waters.

16. Strategies and Recommendations for Strengthening Conservation and Management of Neritic Tuna Species

Neritic tunas are an important resource for many coastal countries, and appropriate management measures are necessary to ensure their long-term sustainability. Effective management measures for neritic tunas require a combination of scientific research, collaborative decision-making, and effective enforcement mechanisms to ensure sustainable use of this important resource. Some recommendations for management measures for neritic tunas include:

1. To maintain necessary workshops by IOTC and related entities, relating to *stock assessment, species identification*, and training courses specific for *observers & field samplers* on data collection and statistics with special reference to IOTC resolutions & recommendations, in order to ensure the continued development of these critical skills.
2. Increase public awareness: Educate the public about the importance of sustainable fishing practices and the need to protect neritic tuna populations.

This can include outreach to fishers, consumers, and other stakeholders, as well as public education campaigns.

3. Promoting selective fishing gear (longline and pole-and-line) that targets only specific species and reduces bycatch.
4. Supporting economic and social development programs to help fishers transition to more sustainable practices.
5. Effective management, control, and adjustment of fishing effort in the tuna fleet to optimize performance.
6. Improving export opportunities by implementing a plan to sustain the quality of harvested tuna.