

AN ASSESSMENT OF FISHING PRACTICES & FISHERIES GOVERNANCE IN GANJAM

A scoping study in Ganjam district of Odisha, India

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Photo credits: Madhushree Rao



TABLE OF CONTENTS

1. INTRODUCTION	2
2. OBJECTIVE	3
3. SITE SELECTION AND METHODS	4
4. FINDINGS AND INSIGHTS	5
4.1 STATUS OF MARINE COMMONS	5
4.1.1. Fishing zones	5
4.1.2. Decline in fish catch	6
4.2. KNOWLEDGE SYSTEMS AND PRACTICES	6
4.2.1. Crafts and gears	6
4.2.2. Conflict regarding ring seines	10
4.2.3. Government Schemes for Fishermen	10
4.3. MARKET AND TRADE	12
4.3.1 Fresh fish trade	12
4.3.2. Dry fish trade	14
4.3.3. Fish Catch sharing arrangement	15
4.4. GOVERNANCE SYSTEMS	16
4.4.1 Traditional Village Institutions/Village Committees	16
4.4.2. Zonal Committees/Unions	16
4.4.3. District Fisheries Union (Ganjam Matsyajibi Sangha)	18
4.4.4.State Fisheries Union (Odisha Traditional Fish workers Union)	18
4.4.5. State Regulations	18
4.5 Aspiration, Challenges & Way Forward	18
5. GLOSSARY OF TERMS	20
6. Acknowledgement	20
7. REFERENCES	21

1. Introduction

India is the second largest fish producing country in the world accounting for 7.56% of the world's production (Ministry of Fisheries, 2021). The sector is responsible for employing over 16 million people (Rajeev & Bhandarkar, 2022) who are engaged directly in the fisheries sector or in allied activities and also in ensuring that the nutritional needs of millions are met. Over 700 species of fish are harvested annually but their volume has declined significantly (Nambudiri, 2015). Such resource depletion is attributed to overfishing and unsustainable fishing practices (Sahu & Pradhan, n.d.).

Marine fish production in 2020-21 stood at 3.05 million tonnes and Gujarat ranked first with 5.76 million tonnes followed by Tamil Nadu where 5.62 million tonnes of marine resources were harvested (CMFRI, 2022). The length of India's coastline is 8,129 km with eleven coastal states and union territories contributing to the country's fish production. The graph below shows the marine fish landings by state and UTs and it is evident from the data that there is an upward trend in fish production in majority of the states and UTs except Gujarat, Tamil Nadu, Andhra Pradesh, Maharashtra and Daman & Diu which reported much higher figures in 2019 compared to 2020 and 2021.

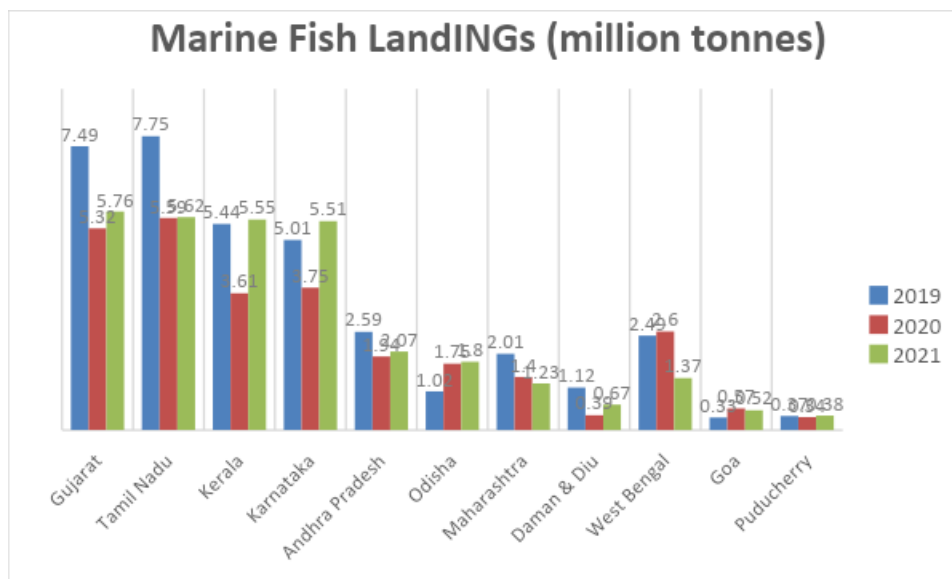


Fig 1: Marine fish landings by state and UTs from 2019-21

Source: CMFRI reports of 2019, 2020 & 2021

For the purpose of the scoping study, we will be focussing on Odisha. The data shows that marine fish production in Odisha has been steadily rising. Odisha has a 480 km long coastline and six maritime districts namely Balasore, Bhadrak, Kendrapara, Jagatsinghpur, Puri and Ganjam. The state has a total fisher worker population of 5,17,623 and 739 fishing villages. Ganjam is a district bordering Andhra Pradesh and has 27 villages and 40,506 marine fisherfolk, the lowest among all the districts of Odisha but it has the maximum number of landing centres (15) in Odisha. In Ganjam, 639 non-motorized crafts are operated, the highest among all the districts in Odisha (CMFRI, 2016).

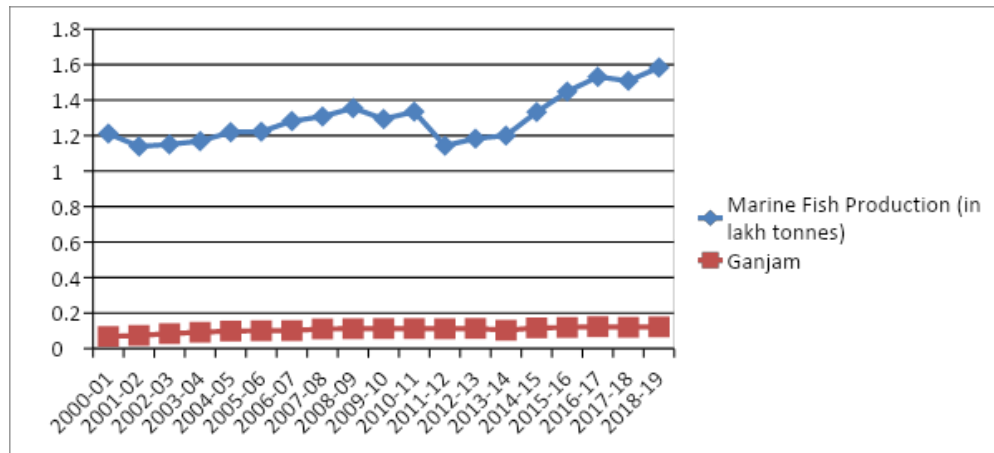


Fig 2: Marine fish production in Odisha and Ganjam
Source: (Department of Fisheries 2019)

The graph above shows the marine fish production in Odisha and Ganjam district from 2000 to 2019. The marine fish harvested in Orissa was lowest in 2011-12 whereas, in 2018-2019, it was found to be the highest.

Marine fisheries in the Southern district of Ganjam, Andhra Pradesh and Tamil Nadu are very similar and dated but they developed much later in the northern districts of Odisha largely due to increased demand for fish from places like Kolkata and other Indian cities (Tietze, 1985).

With respect to various fishing castes found in Ganjam, the *Nolia* community is the dominant caste group among the traditional marine fishing castes. The *Nolias* are a Telugu-speaking community that has been fishing for millennia. *Nolia* is the ornate nose ring that a traditional *Nolia* woman wears as part of her attire which also lends its name to the community. *Nolias* have two sub-castes namely *Jalaris* and *Vodabalijas*, the former concentrated in Ganjam while the latter can be found in parts of Andhra Pradesh, specifically in the districts of Visakhapatnam and Srikakulam (Tietze, 1985). There exists another caste group in Ganjam called the Keutas who are engaged in fishing but exclusively in estuarine waters.

2. Objectives of the study

As part of the proposed co-management initiative of Dakshin Foundation, we carried out this scoping study with the aim to

1. Gain an understanding of the fisheries profile of Ganjam and potential management strategies embedded within the fisherfolk community.
2. Initiate conversations with the community to promote sustainable fisheries management and identify gaps to strengthen the livelihood of fisherfolk communities.
3. Launch a series of dialogues with the fishing community of the selected villages to understand the key issues related to the fisheries sector of Ganjam and to further plan and carry out the next round of conversations with them to implement participatory fisheries co-management.
4. Explore the fishing practices of the villages and understand how they differ from each other in terms of intensity and scale.
5. Understand the governance structure of the fishing community of Ganjam.

3. Site selection and Methods



Fig 3: Location of 5 sites selected
Image credit: Hari Prasath

Nuagaon, Gokarakhuda, Podampetta (ODRP) and Arjyapalli (includes Sana and Bada Arjyapalli) were selected as the study sites as they are all marine fishing villages with a similar cultural background. While these villages are home to traditional fishing communities, they differ in terms of the intensity and scale of fishing practices. The crafts and gears vary in size across these fishing villages. Telugu is primarily spoken in all the villages but the people are conversant in Odia as well.

We selected these four villages as we wanted to compare and contrast the fishing practices across a set of marine fishing villages. The decision to study a cluster of villages primarily came as a recommendation from one of our local consultants from Ganjam, Mr Kaleya who suggested that we broaden the scope of the study to set the foundation for the next round of conversations for implementing participatory fisheries co-management.

A total of 18 semi-structured interviews were carried out with local fishermen, fisherwomen, fish traders, village committee members and dry fish vendors. The report is also based on extensive secondary research. The reason for choosing a purposive sampling is that the study had to be carried out in a time-bound manner. As we went around the villages looking for key contacts, the semi-structured interviews turned into focussed group discussions. Conversations primarily took place in Telugu or Odia, and were translated into Hindi or English by the local field staff of Dakshin. Verbal consent was taken from all the respondents to record the conversations. The interviews were transcribed into English and qualitative analysis was carried out to bring out different themes from the data.

4. Findings and Insights

The findings from the interviews have been categorized under five important themes, viz. status of marine commons, knowledge systems and practices, governance system, market and trade, and future aspirations.

We have focussed our analysis on unpacking the differences across villages and understanding the nuances in each village surveyed. Each theme has two or three sub headings based on the findings of the study.

4.1 Status of marine commons

4.1.1. Fishing zones

Conversations with fishermen of all the villages revealed that there are no designated or separate fishing areas. Fishermen have the right to fish anywhere along the coast as far as their boats can take them.

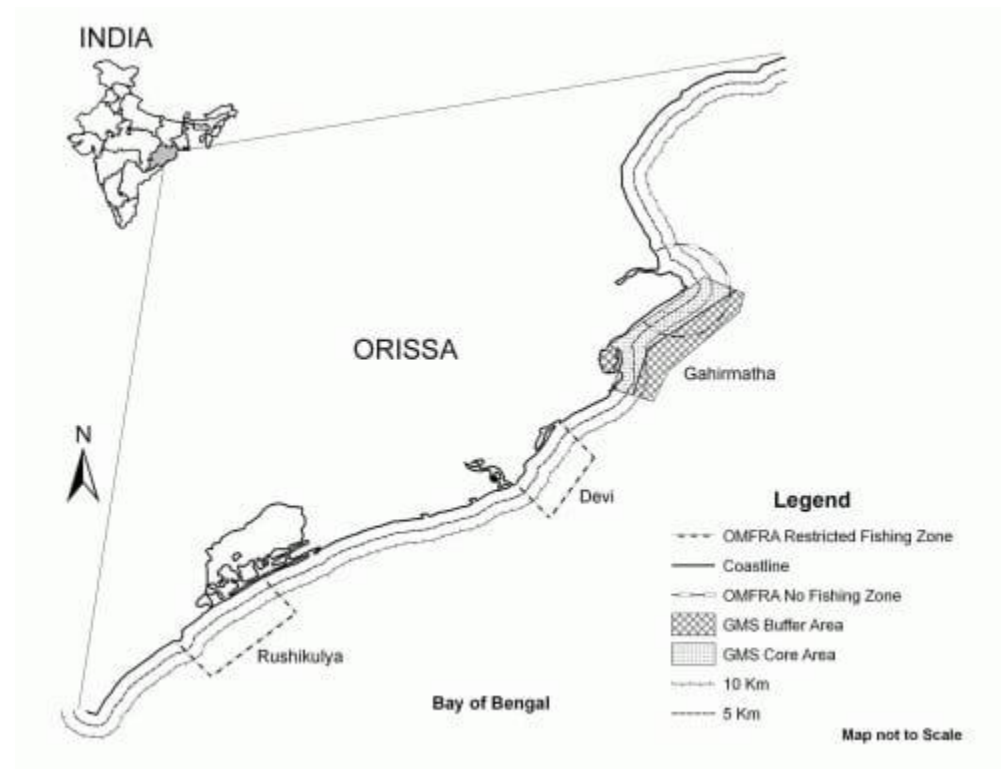


Fig 4: OMFRA Regulations
Source: (Sridhar, Tripathy, Shanker, 2005)

However, the marine fisheries regulation act lays down rules which allow only traditional (non-motorised) boats such as catamarans, country crafts and canoes to venture within 5 km from the shore and motorized boats are allowed to fish beyond the 5 km zone. Additionally, apart from the annual fishing ban which lasts from April 15th to June 14th, and monsoons which end in September when the sea is rough, there is a fishing ban during the turtle mating and breeding season from November 1 to May 31. Mechanised gill netters and trawlers can venture only beyond 20 km from the shoreline in Rushikulya and Devi as they fall in the protected zone due to the turtle mating and breeding season (OMFRA, 2005).

While the fishermen mentioned that there were no fishing boundaries defined but ever since fishers from Arjyapalli and south of Arjyapalli till Ramayapatna started using ring seines and bigger crafts and gears, the fishers from the villages north of Nuagaon were getting lower catch, and that led to the prohibition of entry of fishers from Arjyapalli and south of Arjyapalli into the fishing grounds of Nuagaon and adjoining villages like Podampetta and Gokarkhuda.

Traditional boats (non-motorised) can travel up to a distance of 2-3 km while the motorized (with an engine capacity of 11 HP or greater) can go much farther. According to the fishermen, in Nuagaon, fishers with motorized boats travel up to a distance of 30 km, 40 km in Arjyapalli, 25 km in Gokarkhuda and Podampetta. The fishers reported that they spend a maximum of six to eight hours a day at sea.

In addition to this, the fishermen observe a mandatory fishing holiday on the 15th of every month which they refer to as '*Sankranti*'.

4.1.2. Decline in fish catch

The majority of the fishermen reported an overall decline in fish catch. Two fishermen from Nuagaon mentioned that this phenomenon is caused by factories and industries that release their toxic effluents into the ocean which have impacted the fish population and affected the health of fish. Another reason cited is the catching of juvenile fish which has reduced fish stocks.






Earlier, fish was available near the shore but due to extensive trawling by boats coming in from Andhra Pradesh, there is lower fish catch and fewer shoals of fish visible near the shore. Therefore, lately, fishing has become an extremely unpredictable affair. While a typical fishing trip has fixed costs like fuel, labour and nets, there is no guarantee that fishers will return with any catch whatsoever. This makes fishers extremely vulnerable to the uncertainty of fishing as a livelihood for sustenance.

4.2. Knowledge systems and practices

4.2.1. Crafts and gears

Ganjam has witnessed a huge shift in the type of crafts and gears used over the past two decades (Sridhar & Muralidharan, 2013). The knowledge of fishing and the use of different nets is usually passed down from one generation to the other. Young boys aged 12 or 15 usually accompany their fathers on a fishing trip.

The fishers mentioned that every fish has its season. Fish is caught in a very selective manner in Nuagaon, Podampetta and Gokarkhuda because the nets are designed to target certain species of fish. The usual method of fishing is done by following the movement of the shoal and casting the net into the water. The fishermen see the shoal of fish and then decide which net to use.

Name of net	Targeted species	Months when used	Photo
Kabala jaal	Small sardines or Kabala	Throughout winter from November to December	
Jaga jaal	Mackerel or Kanegarda and other species - kontia, Onogaru, small/medium Para and small Menjiram	Not known	
Koni jaal	Koni, Telia and Kontia	January, February and March.	
Menjiram jaal	Small Pomfret and Hilsa	November and December	
Disco jaal	Chungdi (prawns) and Chopda	Not known	



Ring jaal (bada)	Koni, Para and Mogro	All	
Ring jaal (Mojje)	Kanagurda, Bada kabala, medium Tumbada and medium Para	All	
Ring jaal (Sano)	Chotta kabala, Chotta kokili, Chotta Chungdi and Chotta Kanakurda	All	
Chandi jaal	White and black pomfret (Chandi)	February	
Source and image credit: (Sridhar and Muralidharan 2013) and Nagamma			

Table 1: Common crafts and gears

For small fish which are visible near the surface of the water, a small net is used. If the catch is greater than the storage capacity of the boat, the fishermen let the fish go. The fishers of Nuagaon, Podampetta Gokarkhuda use less intensive fishing crafts and gears which are selective and target certain fish species. In Arjyapalli and fishing villages to the south of it the fishing is comparatively more intense as they have larger crafts and gears. Among the gears that they use, ring seine is one of the prominent and as a result of which the catch size is much larger in Arjyapalli when compared to that of Nuagaon, Podampetta and Gokarkhuda.

In the late 1980s, nets used to be made of cotton and hemp but they have been replaced by factory-made nylon and polyethylene nets (Sridhar & Muralidharan, 2013). Fishermen in Ganjam use a variety of nets such as *disco jaal*, *jaga jaal*, *parnava jaal*, *katla jaal*, *ring jaal*, *kabala jaal* to catch individual species of fish.

Making nets is a group activity that is practised widely in Nuagaon. The cost of a net ranges between Rs 20,000 and Rs 1 lakh and depends on the quality of the material used and the type of net. In Ganjam, the fishers buy their nets and equipment which are intensive from Andhra Pradesh, Tamil Nadu, Kerala. During the off-season when fishing does not happen, the fishermen spend most of their spare time repairing their nets and boats.

Taluk	Village name	Mechanised	Inboard	Outboard	Non-Motorised	Gears
Chatrapur	Arjyapalli	0	0	192	131	1400
	Nolia Nuagaon	0	0	196	109	940
Ganjam	Podampeta	0	104	0	25	Not known
	Gokurkhuda	0	40	0	20	365
Source: (Sahu, et al. 2012), (CMFRI, 2016)						

Table 2: The table below shows the number of motorized and non-motorized crafts and gears used in the four villages



Image 1: Boats of different sizes in Nolia Nuagaon

Boats are an important investment for a fisherfolk community. There are three kinds of boats, mechanised, motorised and non-motorised (traditional). From the table above, none of the villages surveyed have mechanised boats. Arjyapalli and Nolia Nuagaon have a large number of non-motorised traditional crafts. It is noteworthy to mention that Ganjam has a total of 639 non-motorised boats (CMFRI, 2016), the highest among the districts of Orissa.

The highest number of non-motorised boats can be found only in Nolia Nuagaon (Sahu, et al. 2012). Majority of the fishermen from the villages use fibre boats Bada fibre boats can be found mostly in Arjyapalli. They accommodate larger gill nets, ring nets and longer durations of fishing (Sridhar & Muralidharan, 2013). A motorised boat costs anywhere between Rs 1.5 to 5 lakhs depending on the engine capacity and size.

In terms of onboard capacity, traditional boats can accommodate up to three to four crew members while a motorised boat can carry up to eight to nine fishermen. The boats used in Arjyapalli are larger with greater capacity than the boats used in Nuagaon,

Gokarkhuda and Podampetta. A maximum of 5 tonnes of fish can be loaded onto a motorised boat while the traditional boats have a capacity of about 500 kg. The boats in Arjyapalli were found to have single blade, double blade propellers or water pulling type of engines.

4.2.2. Conflict regarding ring seines

Ring seines or purse seines are a type of net in which the line passing through the rings at the lower edge of the net is drawn in like a string purse. Mostly shoaling fish are targeted through this net. For fishing in a ring net the shoal is pursued and surrounded by a fishing boat which simultaneously lays the net. Once the shoal is inside, the net is drawn to scoop the entire shoal all at once.

In Ganjam, the use of ring nets was not prevalent a decade ago (Kaleya, 2021). 2012 onwards, many southern coastal fishing villages in Ganjam which bordered Andhra Pradesh like Ramaya Patna and Patsonapur started using ring seines as in the neighbouring state the use of such an intensive gear had yielded immense profits. To use ring seines, the boats (Bada Fibre) that were used were much larger in size (approximately 12-15m) than the smaller fibre boats which measured 10m and also used powerful motors (Sridhar & Muralidharan, 2013). Thus only the few well off people in the community could afford to fish using ring seines and the larger boats. What followed next was a conflict between the users of ring seines and its non-users as the use of the net led to lesser catch for most of the small-scale fishers many of whom owned small fibre boats. As a result of this conflict, the district fisheries union along with the Odisha Traditional Fishworkers Union (OTFWU) pressed for its ban in the entire Ganjam coast.

Although the ban was enforced by the union, fishing villages till Arjyapalli and other southern coastal fishing villages near to Ramaya Patna and Patsonapur fished using ring seines. In the following years there were conflicts of fishers from the above-mentioned villages with other fishers from the villages that did not use ring seine. The villages north of Arjyapalli i.e Nuagaon, Gokharkuda, Podampetta, Kalrabad and Prayagi were the ones which did not use ring seines. They also formed a zonal umbrella union known as *Sata Khanda Gaan Committee*, which banned the use of ring seines in their villages and also restricted the entry of other fishing boats that used ring seines. The fishers of Nuagaon, Podampetta and Gokarkhuda mentioned that while there are no designated fishing grounds, using ring seines is not allowed where they fish and usually attracts sanctions and seizing of boats. The conflict and the zonal committees based on the use of ring seines has been elaborated in the governance section below.

4.2.3. Government Schemes for fishermen

A review of secondary literature showed that there exist about fourteen centrally and state sponsored schemes specifically for marine fisherfolk and other actors in the fish supply chain in Odisha. Some important schemes that the fishermen mentioned during the interviews are summarized below:

Name of scheme	Details of scheme
Motorization of traditional crafts (Blue Revolution: Integrated Development and Management of Fisheries)	50% subsidy on engines of up to 10 HP amounting to a maximum of Rs 60,000. This scheme can be availed only once in five years. The matching amount has to be borne by the fisherman either through his personal funds or a bank loan [11](Directorate of Fisheries, 2017).
Saving-cum-Relief	To support 10,000 fishermen and encourage them to save and assist them financially during the lean period. As part of this scheme, a fisherman is required to deposit Rs 1500 for nine months and the government will contribute Rs 3,000. This amount would be disbursed to the fishermen by the department of fisheries during the lean/ban period of three months every year. Fishermen aged 18-60 who are members of a fisheries cooperative society or federation are eligible. According to data published by the directorate of fisheries, there were 1,203 beneficiaries under this scheme in 2016-17 from the 4 study sites [12](Directorate of Fisheries, 2019).
Accident insurance	Insurance worth Rs 2 lakhs in the event of death or loss of limbs during an accident. The annual premium for availing such insurance is Rs 12/- per member.
Livelihood support to marine fishermen during the fishing ban period	To support fishermen during the turtle ban period from November to March. One member of a household who could be a fisherman, crew member or a person engaged in allied activities is entitled to receive Rs 7,500 annually from the fisheries department via the cooperative society that he is a member of [13](Directory of Fisheries, 2018). It was found that fishermen from Arjyapalli do not receive this amount from the fisheries department.
Safety of fishermen at Sea	To provide safety kits worth Rs 30,000. A safety kit contains one GPS, four life jackets and one lifebuoy. In 2016-17, the directorate of fisheries, Odisha reported 1114 beneficiaries under this scheme in the entire state[11] (Directorate of Fisheries, 2017).
Assistance for fish transport infrastructure	A scheme where fish traders can buy a motorcycle with an ice box or an auto rickshaw with an ice box with assistance of Rs 30,000 and Rs 1 lakh respectively. However, this scheme is meant for SC fishers. 235 SC beneficiaries and 227 general category beneficiaries availed of the scheme in

	2016-17 and 2018-19 respectively [13] (Directorate of Fisheries, 2018).
Subsidy on nets and boats	The government offers a 40% subsidy to fishermen from the general category and 60% subsidy to SC fishermen to buy new boats, nets and engines

The women fish vendors mentioned that there are no special government schemes of any kind to support them. The only form of help they receive is rice through their ration cards.

There is a registered society in every marine fishing village which is known as the Primary Marine Fishing Cooperative Society (PMFCS) which is linked to the fisheries department. The primary function of this society is to partake in the implementation of all schemes and subsidies by the fisheries department at the village level. There are designated Presidents and Secretaries of these societies and in most of the societies women fishers are not the part of it.

Taluk	Village name	Fisheries Cooperative	Other Cooperatives
Chatrapur	Arjyapalli	160	56
	Bada Nolia Nuagaon	224	333
Ganjam	Podampeta	389	360
	Gokurkhuda	228	198
Source: (CMFRI, 2016)			

Table 3: Number of members in the cooperatives of the surveyed villages

4.3. Market and Trade

4.3.1 Fresh fish trade

Fresh fish is primarily landed and sold on beaches in Nuagaon, Gokharkuda and Podampetta. The auction happens on the beach where many traders from the village and nearby areas come to buy fresh fish and later sell it to the nearby markets. An auctioneer who is known as *Dalaari* in local language usually takes the lease from the village institution of that particular village to conduct the auctioning between the traders and usually earns a percentage from the traders who buy the fish. In Arjyapalli this auction is usually held in the fishing harbour and it also involves larger traders

who buy fish for exports. Some of the fish which are exported to other states are Seer Fish, Pomfrets, Eels, Salmons, Tuna, Giant Catfish and Sea Bass.

Fisher women are actively involved in both the fresh fish and dry fish trade which is sold locally. Often they travel to the nearby markets of Ganjam, Humma, Baluagaon and Berhampur which are farther from their village to sell dry fish. The women traders usually buy fish worth Rs 1000-1500 each by pooling in money together and later divide the catch amongst themselves to sell in the nearby markets. They earn a profit of about Rs 200 each approximately each time they sell the catch. One woman fish vendor mentioned that if the volume of fish to be bought is high and they do not have enough capital to buy from the auctioning, they pawn their gold with the bank for liquid cash.

There's a lot of risk in the fresh fish trade because it has to be sold immediately, or needs to be stored in ice to be sold later. Sometimes the trader also verifies the rate in other nearby markets like Balugaon and then quotes a price during the auction.

Important markets in Ganjam district include Balugaon, Chatrapur and Gopalpur while outside Ganjam they are Bhubaneshwar, Puri, Talchar, Koraput and Baleshwar. Fishes having higher commercial value like Seer Fish, Pomfrets, Eels, Salmons, Tuna, Giant Catfish and Sea Bass is also exported to Kolkata and Digha in West Bengal and Uppada, Kakinada and Visakhapatnam in Andhra Pradesh, Tamil Nadu and Kerala.



Image 2: Fresh fish brought to the jetty in Bada Arjapalli

Village name	No of fisherwomen	No of fish traders
Nuagaon	100	3
Podampetta	25	5
Gokarakhuda	10	3
Arjyapalli	100	10
*As reported by fishermen and fisherwomen		

Table 4: The table below shows the number of fish vendors and traders in the selected sites

4.3.2. Dry fish trade

Women primarily prepare and sell dry fish. Typically, two women work together; the older woman takes charge of buying the fish through auction and selling the dried fish in the weekly market while the younger woman takes care of processing activities (Kumar and Mohanta n.d.).

Many varieties of lesser commercial value are bought from the fishermen and processed for dry fish. Salt is primarily procured from Humma market which is the largest market for dry fish in Ganjam and also has a salt cooperative which sells salt.



Image 3: Fish being dried in a *Kundi* or conical-shaped structure

Processing of dry fish

The fish is layered with salt and a cement '*kundi*' or conical-shaped structure is used to dry the fish for two to three days. Some women lay the fish out on a flat cement structure and let it dry in the sun. In Arjyapalli, fish are laid out to dry on the jetty itself. Here, the fish are prone to be stepped on and eaten by animals. Some of the dried fish is crushed and sold as fish feed while some of it (fish that is dried in the *kundis*) is sold for human consumption.



Image 4: Fish being dried on the jetty in Bada Arjyapalli

The time taken for drying depends on the climate; if it is sunny then it only takes a day's time otherwise, the entire process takes approximately five to six days. There is a high risk of the fish getting spoiled when it rains.

The dried fish is transported to Humma market or other dry fish markets like Rajsunakhala on Saturdays and the sale happens on Sunday. Dry fish vendors are charged Rs 5 per kg as tax amount to the panchayat authorities where the markets are based.

4.3.3. Fish catch sharing arrangement

A normal fishing trip entails fixed costs like fuel, maintenance of boats and nets which the boat owner incurs whenever he takes out his boat. There are two ways in which the catch is shared; one is where the profit is shared equally among the fishermen and crew members after deducting the investment costs like the fuel and repair and maintenance of boats and nets. For example, if the proceeds from the sale of the fish amount to Rs 2000, Rs 1000 is deducted towards the fixed costs for the investment and goes to the boat owner while the remaining Rs 1000 is divided equally among the boat owner and crew members.

The other arrangement is where the fish catch is divided among the crew involved in the fishing and the owner of the boat in a particular ratio which could range from 30:70, 50:50 to 40:60 depending on what is agreed upon by the boat owner and crew members

4.4. Governance Systems

4.4.1. Traditional Village Institutions/Village Committees

In coastal marine fishing villages across Ganjam, the traditional village committee is the most powerful institution. It has the legislative, judiciary and executive power in a fishing village. The village institution has six to eight core members who are collectively known as *Bhadralok* in the village. The core members of the village committee are elected by every fisher in the village and they do not have fixed terms as the core members. They are either retained or removed from their positions based on their performance. The elderly fishers in the village influence this decision-making process.

The president, also known as *Ooru Pedda*, is chosen on the basis of his fishing skills in the marine fishing villages across Ganjam. The vice president also known as *Kularaju* aids him in the functioning of the committee and convenes meetings as and when required. The core committee also consists of a treasurer who looks after the funds that the village committee generates. The village committee generates funds from different sources of auctioning. There are auctioning of liquor outlets and trading in landing centres which are usually given to people from the village who have to pay a certain fixed amount to the committee after they win the auctioning rights.

There is a village messenger in every village who relays information to the others in a timely manner. He informs the fishermen about no-fishing days and arranges meetings between potential brides and grooms.

Major decisions taken by the Village Committee:

- **Setting up norms and regulations around fishing-** The committee decides and makes rules on fisheries governance in the village. They decide to ban fishing on certain days like Sankranti, the demise of people in the village, and festivals in the village. They also enforce village fishing boundaries in case of a conflict of fishers across villages regarding the use of certain kinds of crafts or gears.
- **Day to day affairs of the village-** The village committee takes decisions on marriages, eloping, divorces and family disputes both within and outside the village as well. Those who flout the decisions made by the committee are fined. The fines and sanctions are documented in a cash register. The parties in conflict can request a bond paper of sorts from the village committee leaders after they reach a settlement in the meeting of the committee.
- **The village committees also hold meetings with elected ward members and Sarpanch** as and when required to discuss projects by the gram panchayats such as roads, parks, drains, schools, drinking water facilities etc.
- **The bye-laws of the traditional village institution** have existed for generations and are undocumented and mostly passed down by word of mouth.

4.4.2. Zonal Committees/Unions

Zonal committees are a cluster of 5-6 village committees. These committees were formed exclusively on the basis of the use of certain types of crafts and gears across fishing villages. Some of the fishing villages in Ganjam started using intensive fishing crafts and gears in Ganjam around 2015-2016 (Kaleya, 2022). The use of intensive fishing gears in some of the villages created conflicts with other neighbouring villages in Ganjam

who refused to use such crafts and gears as using intensive fishing methods led to the depletion of fisheries stock in the area. This led to the formation of zonal committees in the coastal Ganjam. The zonal committees have a president and a vice-president

The marine fishing villages from north of Nuagaon till Prayagi formed a separate zonal committee which was also known as the Sata Khanda Gaon Committee. This committee has representatives from the villages of Nuagaon to Prayagi. To the south of Nuagaon, from Aryapalli till Golabandha there is a separate zonal committee and then from the village of Garampentha till Pat Sonepur village, there exists another zonal committee which is currently quite active.

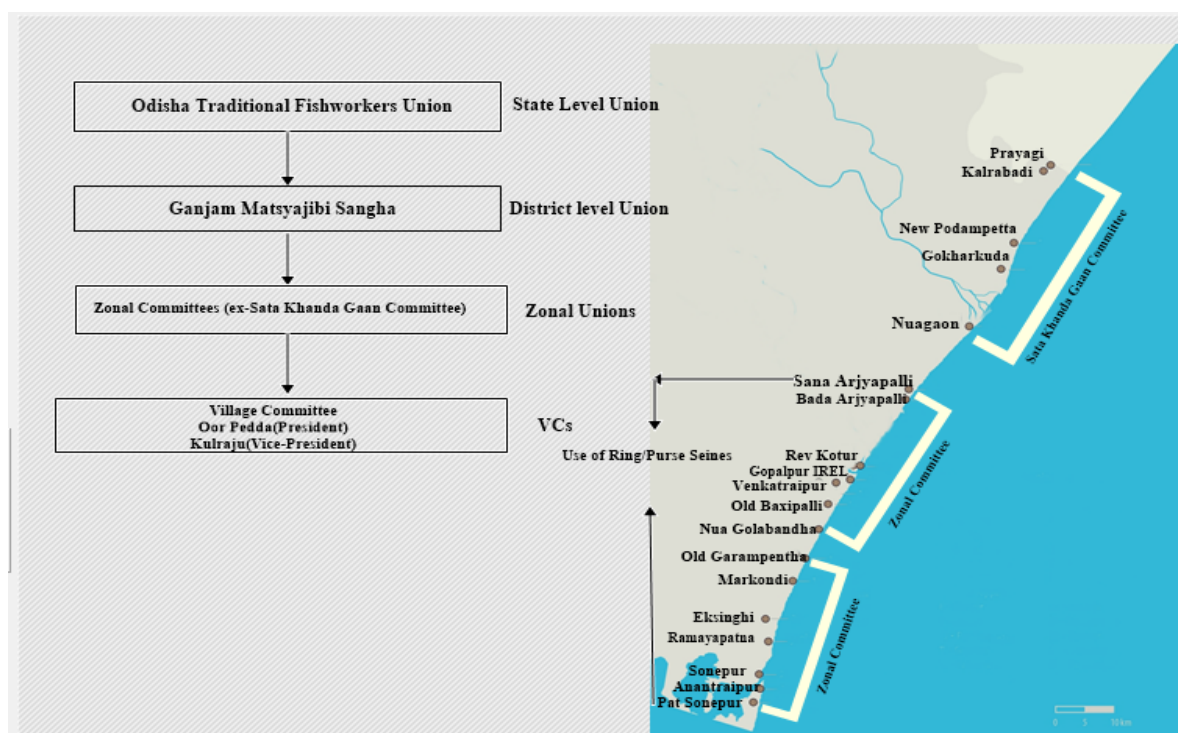


Image 5: Structure of fisheries governance in Odisha: The right part of the picture shows the different coastal villages governed by different zonal committees while the left part shows the hierarchical structure of different governance institutions.

Functions of zonal committee:

- Represent their respective zones during conflicts regarding fishing-** The zonal committees were exclusively formed on the basis of conflicts arising from the use of different crafts and gears across the fishing villages that led to differential catch. For example, the use of ring seines in villages south of Nuagaon has created conflicts with the fishers from Arjyapalli. Thus for the resolution of such conflicts, the fishers of Nuagaon, Gokharkuda, Podampetta and Prayagi have created a zonal committee which is known as Sata Khanda Gaon Committee. Similarly, the villages south of Nuagaon also have other zonal committees which meet with their counterparts to discuss and resolve conflicts related to fishing.
- Collectively decide on fines and sanctions-** The zonal committees also decide on the fines and sanctions to be levied on the fishers who trespass fishing boundaries, and use ring seines inside other fishing grounds. Along with other zonal committees, they make rules for various sanctions. There are no documented bye-laws for these zonal committees however financial transactions on sanctions are well documented in a register.

- **Represent the cluster of villages in terms of social conflicts-** The zonal committees also act as mediators when it comes to inter-village disputes which cannot be resolved at the village level. They intervene when there are disputes related to marriage, elopement and divorces.
- **Elect the members of the district fisheries union-** The zonal committees also elect members for representation at the District Level Fisheries Union to represent the grievances of the fishers at the State Fisheries Union Meetings. The zonal committees themselves have a president and secretary who are elected by the village institutions in their respective clusters.

4.4.3. District Fisheries Union (Ganjam Matsyajibi Sangha)

The executive body which comprises the fisherfolk community is responsible for selecting the secretary and president of the district union. The elected representatives voice the grievances of the fishing community in the district in state-level fisheries union meetings.

4.4.4. State Fisheries Union (Odisha Traditional Fish workers Union)

The state fisheries union represents the traditional fishers of the entire state. The state fisheries union is a part of the National Fish workers Forum. The state union also organises awareness sessions on various laws and acts in the state and influences the state government while drafting policies regarding traditional fishers in the state.

4.4.5. State Regulations

Fisheries governance is primarily a state subject; every coastal state of India is responsible for managing its fishery resources. The Orissa Marine Fishing Regulation Act 1982 governs the fisheries of the state of Odisha and the State Assembly passes all laws pertaining to inland as well as marine fisheries. The Orissa Marine Fishing Regulation Rules were published in 1984. The rules lay down specific guidelines with respect to the operation of certain class of vessels (motorised, non-motorised and mechanised boats) in different zones, fishing license, registration, gear restrictions, penalty and so forth. Amendments made to the rules are published as notifications by the fisheries department which is the main government agency in charge of implementing various fisheries rules across the state. The State has sole jurisdiction over Inland fisheries but marine fisheries is jointly governed by the Centre and States. The State is responsible for the development, regulation and management of fisheries within a 22 km (12 nautical miles) territorial limit. Beyond this boundary, the centre has jurisdiction over deep water fishing up to 370 km (200 nautical miles).

4.5. Aspirations, Challenges and Way forward

In the process of interviewing fishermen and women fresh/dry fish vendors, we found that the majority of them were unable to fully articulate their aspirations though some of them shared their hope for the future. This hesitation must stem from the fact that they have never imagined a different reality for themselves given that they have been solely engaged in fishing and selling fish for generations.

The interviews with fishermen from Gokarakhuda, Podampetta and Nuagaon also brought up key issues of livelihoods and sustainability. For instance, fishers from both these villages were sceptical about the use of ring seines for the simple reason that though its use would generate good returns which is one of their needs but it would also impact fish stocks over a longer period of use. Given that there is an ongoing conflict within fishing villages of northern zones and southern zones regarding use of ring seines and depleting fish stocks, there are opportunities for dialogues for sustainable fishing and resource management. The presence of strong traditional village committees and zonal committees also indicate a scope for conflict resolution and regulation for better resource management.

Our interactions with several women fish vendors led us to understand that the sea is their 'life and land' and that it is their only means of livelihood. Though, they are intent on educating their children and envision a better and more financially secure future for them. This shift from fishing to other livelihoods could very well lead to the loss of skill such as how to cast or repair a net and traditional knowledge of fishing but it is an unavoidable reality given their aspirations to enter other professions which pays well.

Fishing is an activity that has been practised for generations in the surveyed villages and many fishermen that we interviewed expressed that they would continue to fish forever as it is their main livelihood. Linking this to Dakshin's Seachange plans, it is evident that these fisherfolk communities need to be empowered to manage and set up norms regarding the resource use. This would also help them conserve fish stocks based on their existing knowledge systems to strengthen their livelihood.

In terms of the challenges faced by the fisherfolk community, it was found that all the selected villages have self-help groups which used to sell value-added products like pickles, papad and dry fish but most of them are defunct now. One woman mentioned that she is not a member of any SHG as the loan default rate is very high. One fisherwoman from Podampetta mentioned that there isn't much work during the off season and she ends up staying at home. This calls for interventions in creating livelihood enhancement opportunities for the community during times when fish is not available.

There is an increasing trend of fishermen and their families migrating to other places across the country for employment opportunities. They usually work on trawler vessels, in construction and housekeeping earning money to help them tide over the months when fishing is not a viable option during the seven months' turtle ban. Dry fish vendors from Nuagaon revealed that they are being charged a huge sum by Humma dry fish market authorities for the space that is assigned to them and they have requested help to tackle the issue. Collective action is needed to address the community's common issues, though it is imperative for the fishworkers to understand its benefits before collectivising.

A fisherman's life is mired in uncertainty despite all the effort of time, fuel and labour that goes into fishing but this also means that the livelihood of the people (fish vendors, traders and others along the fish supply chain) working in allied activities is equally at risk. Further discussions are required with the fishworkers and fishworker organizations/unions to probe deeper into the issues highlighted above and to work together to solve issues.

5. Glossary of Terms

● Chandi -	Pomfret
● Chingudi -	Prawn
● Chopda -	Prawn
● Disco Kabala -	Rainbow Sardine
● Kabala -	Indian Oil Sardine
● Kanegarda -	Mackerel
● Kankada -	Crab
● Koinga -	Mullet
● Kokkuli -	Slender Rainbow Sardine
● Koni -	Seer Fish
● Kontia -	Catfish
● Menjiram -	Seer Fish
● Mogro -	Catfish
● Nettalu -	Anchovy
● Para -	Yellowtail Sead
● Sankara -	Red Snapper
● Sawada -	Ribbon fish
● Kotli -	Anchovy
● Mejji -	Bluespot Mullet
● Sila -	Belanger's Croaker
● Sura -	Baby shark
● Tumbda -	Tuna

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Appendix

The table below shows the fish varieties caught by fishermen in the four sites. The names are in the local language.

Fish varieties harvested across the study sites	
Kanegurda	 <p>Image credit: Randall, J.E., 1997</p>
Tumbda	 <p>Image credit: Randall, J.E., 1997</p>
Sura	 <p>Image credit: Bernardes et al, 2005</p>
Mejji	 <p>Image Credit: Randall, J.E., 1997</p>

Koni



Image credit: Randall, J.E., 1997

Khoinga



Image credit: Balaram Mahalder

Sawada



Image credit: Osmany, H.B.

Chandi



Image credit: Rahman, A.K.A.

Chingudi



Image credit: Internet









Kankada	 <p>Image credit: Internet</p>
Kabala/Kokkuli	 <p>Image credit: Hermosa, Jr., G.V.</p>
Kontia	 <p>Image credit: Hamid Badar Osmany</p>
Para	 <p>Image credit: internet</p>
Sila	 <p>Image credit: Yau, B</p>
Nettalu/Kotli	

	Image credit: Hermosa, Jr, G.V.
Menjiram	 Image credit: Randall, J.E., 1997
Sankara	 Image Credit: Randall, J.E., 1997

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